EXAMINATION OF LIFESTYLE CHANGES OF ENGLISH, FRENCH AND CHINESE SPEAKING IMMIGRANTS IN OTTAWA AND GATINEAU, CANADA

By

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Examination of Lifestyle Changes of English, French and Chinese Speaking Immigrants in Ottawa and Gatineau, Canada

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Summary

(English/Anglais/英文)

A Multicultural Lifestyle Change Questionnaire that included English, French and Chinese versions was developed and pilot-tested in 121 immigrants (41, 42 and 38 subjects respectively for English, French and Chinese speaking immigrants) in two adjacent cities (Ottawa and Gatineau) of Canada. The pilot-testing results demonstrated that the questionnaire had a high validity and reliability. After being revised appropriately, it was used in the multicultural survey to examine lifestyle changes of English, French and Chinese speaking immigrants in the two cities.

In total, 810 immigrants (278, 268 and 264 subjects respectively for English, French and Chinese speaking immigrants) in the target population were recruited by a purposive-sampling to the survey. Using self-reports, the participants answered questions regarding lifestyle changes (behavior and belief changes in Smoking, Alcohol Consumption, Mood, Sleep, Physical Activity and Diet), health status change and demography (Mother Tongue, Speaking Languages, Age, Gender, Marital Status, Category of Immigration, Duration of Residence in Canada, Highest Level of Education, Employment Status,

Primary Occupation, Religion and Income) in the multicultural questionnaire. Methods of percentage, significance, multivariate (correlation and regression) analysis and factor analysis were applied in data analysis for the sub-groups.

The survey results show that the immigrants of different gender, language and category sub-groups exhibited different change rates in smoking, alcohol consumption, mood, sleep, physical activity, diet and health status. However, there were not statistical differences between the rates, except significant differences between increasing and decreasing rates of the category sub-groups in consumption of nutritional foods and junk and processed foods. Different demographic factors were correlated with the lifestyle changes and/or significantly impacted the changes.

Mother Tongue was correlated with Smoking Change and Smoking Behavior Change, Drinking Change, Mood Change, Sleep Change and Sleep Behavior Change. Speaking Languages were correlated with Mood Change and Dietary Change. Age was correlated with Sleep Change and Sleep Behavior Change, Physical Activity Behavior Change, Dietary Change, and Health Status Change. Gender was correlated with Smoking Change and Smoking Behavior Change, Drinking Change and Drinking Behavior Change, Physical Activity Change and Physical Activity Behavior Change. Marital Status was correlated with Mood Status Change. Category of Immigration was correlated with Smoking Change, Drinking Behavior Change, Physical Activity Change and Physical Activity Behavior Change. Duration of Residence in Canada was correlated with Smoking Change and Smoking Behavior Change. Highest Level of Education was correlated with Mood Status Change. Employment Status was correlated with Physical Activity Change and Physical Activity Behavior Change. Primary Occupation was

correlated with Sleep Change and Sleep Behavior Change, Physical Activity Change and

Physical Activity Behavior Change, and Health Status Change. Religion was correlated

with Dietary Change and Dietary Behavior Change. Income was correlated with Health

Status Change.

Mother Tongue significantly impacted Drinking Change, Mood Change, Sleep

Change and Sleep Behavior Change, Physical Activity Behavior Change and Health

Status Change. Speaking Languages significantly impacted Mood Change and Dietary

Change. Age significantly impacted Smoking Change and Smoking Behavior Change,

Sleep Change and Sleep Behavior Change, Physical Activity Change and Physical

Activity Behavior Change, Dietary Change. Gender significantly impacted Smoking

Change and Smoking Behavior Change, Drinking Change and Drinking Behavior

Change, Physical Activity Change and Physical Activity Behavior Change. Marital Status

significantly impacted Mood Status Change. Category of Immigration significantly

impacted Physical Activity Change and Physical Activity Behavior Change. Duration of

Residence in Canada significantly impacted Smoking Change. Highest Level of

Education significantly impacted Mood Change and Mood Status Change. Employment

Status significantly impacted Physical Activity Change and Physical Activity Behavior

Change. Primary Occupation significantly impacted Sleep Change and Sleep Behavior

Change, and Health Status Change. Religion significantly impacted Dietary Change and

Dietary Behavior Change. Income significantly impacted Health Status Change.

Two factors (factor one: physical activity behavior change factor and factor two:

physical exercise belief change factor) influenced significantly Physical Activity Change.

However, factor one had more significant effect than factor two. One factor (factor one:

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dietary behavior change factor) significantly influenced Dietary Change; other factor
(factor two: dietary belief change factor) did not significantly impacted Dietary Change.

Lifestyle behavior change could not accord completely with lifestyle belief change,
but it showed more significant impacting effect on lifestyle change action than lifestyle
belief change. Cultural and acculturated differences could be associated with the
disparities of lifestyle changes of the immigrant sub-groups. The survey results supported
"healthy immigrant effect" in immigrant-receiving countries. The "decline in immigrant
health status" over time existed in some of the immigrant sub-groups. The research-based
knowledge of the multicultural lifestyle changes can be translated to health policies,
programmes and practices in Canada.

Key Words: Immigration, Immigrant Sub-groups, Questionnaire Development,

Pilot-Testing, Validity, Reliability, Lifestyle Changes, Health Status

Change, Culture, Multiculture, Acculturation, Percentage, Significance

Level, Multivariate Analysis, Factor Analysis, Knowledge Translation.

L'étude du changement de mode de vie des immigrants anglophones, francophones et sinophones à Ottawa et Gatineau au Canada

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Résumé

(Français/French/法文)

Un questionnaire multiculturel sur le changement de mode de vie qui comprenait les versions de l'anglais, le français et le chinois a été constructé et il a été pilote-testé dans 121 immigrants (41, 42 et 38 gens respectivement pour les anglophones, les francophones et les sinophones) dans deux villes adjacentes (Ottawa et Gatineau) au Canada. Les résultats du pilote-test ont prouvé que le questionnaire avait une bonne validité et une bonne fiabilité. Après avoir été révisé convenablement, le questionnaire a été utilisé dans l'enquête multiculturelle pour étudier les changements de mode de vie des immigrants anglophones, francophones et sinophones dans les deux villes.

Au total, 810 immigrants (278, 268 et 268 gens respectivement pour les anglophones, les francophones et les sinophones) dans la population cible des deux villes ont été recrutés par un échantillonnage raisonné à l'enquête. Par l'auto-rapports, les participants ont répondu aux questions concernant les changements de mode de vie (les changements de comportement et les changements de croyance à la consommation de la cigarette, à la consommation de l'alcool, à l'humeur, au sommeil, à l'activité physique et à l'aliment), le

changement d'état de santé et la démographie (la langue maternelle, les langues parlées, l'âge, le genre, la situation familiale, la catégorie d'immigration, la durée de résidence au Canada, le plus haut niveau de scolarité, le statut d'emploi, la profession principale, la religion et le revenu) dans le questionnaire multiculturel. Les méthodes d'analyse du pourcentage, de la signification, des multivariétés (corrélation et régression) et du facteur ont été utilisées pour l'analyse de données des sous-groupes.

Les résultats de l'enquête montrent que les immigrants de sous-groupes des différents genres, différentes langues et catégories présentaient des différents taux du changement à la consommation de la cigarette, à la consommation de l'alcool, à l'humeur, au sommeil, à l'activité physique, à l'aliment et à l'état de santé. Cependant, il n'y avait pas de différences statistiques entre les taux, à l'exception des différences significatives entre les taux de l'augmentation et de la diminution des sous-groupes de la catégorie à la consommation des aliments diététiques et à la consommation des malbouffes et aliments industrialisés. Les différents facteurs démographiques étaient en corrélation avec les changements de mode de vie et/ou ils ont eu des effets significatifs sur les changements.

La langue maternelle était en corrélation avec le changement de fumer et le changement de comportement de fumer, le changement d'humeur, le changement de sommeil et le changement de comportement de sommeil. Les langues parlées étaient en corrélation avec le changement d'humeur et le changement d'aliment. L'âge était en corrélation avec le changement de sommeil et le changement de comportement de sommeil, le changement de comportement d'activité physique, le changement d'aliment, le changement d'état de santé. Le genre était en corrélation avec le changement de fumer et le changement de comportement de fumer, le changement de consommation d'alcool et

le changement de comportement de consommation d'alcool, le changement d'activité physique et le changement de comportement d'activité physique. La situation familiale était en corrélation avec le changement d'état d'humeur. La catégorie de l'immigration était en corrélation avec le changement de fumer, le changement de comportement de consommation d'alcool, le changement d'activité physique et le changement de comportement d'activité physique. La durée de résidence au Canada était en corrélation avec le changement de fumer et le changement de comportement de fumer. Le plus haut niveau de scolarité était en corrélation avec le changement d'état d'humeur. Le statut d'emploi était en corrélation avec le changement d'activité physique et le changement de comportement d'activité physique. La profession principale était en corrélation avec le changement de sommeil et le changement de comportement de sommeil, le changement d'activité physique et le changement de comportement d'activité physique, le changement d'état de santé. La religion était en corrélation avec le changement d'aliment et le changement de comportement d'aliment. Le revenu était en corrélation avec le changement d'état de santé.

La langue maternelle avait un effet significatif sur le changement de consommation d'alcool, le changement d'humeur, le changement de sommeil et le changement de comportement de sommeil, le changement de comportement d'activité physique et le changement d'état de santé. Les langues parlées avaient des effets significatifs sur le changement d'humeur et le changement d'aliment. L'âge avait un effet significatif sur le changement de fumer et le changement de comportement de fumer, le changement de sommeil et le changement de comportement de sommeil, le changement d'activité physique et le changement de comportement d'activité physique, et le changement

d'aliment. Le genre avait un effet significatif sur le changement de fumer et le changement de comportement de fumer, le changement de consommation d'alcool et le changement de comportement de consommation d'alcool, le changement d'activité physique et le changement de comportement d'activité physique. La situation familiale avait un effet significatif sur le changement d'état d'humeur. La catégorie d'immigration avait un effet significatif sur le changement d'activité physique et le changement de comportement d'activité physique. La durée de résidence au Canada avait un effet significatif sur le changement de fumer. Le plus haut niveau de scolarité avait un effet significatif sur le changement d'humeur et le changement d'état d'humeur. Le statut d'emploi avait un effet significatif sur le changement d'activité physique et le changement de comportement d'activité physique. La profession principale avait un effet significatif sur le changement de sommeil et le changement de comportement de sommeil, et le changement d'état de santé. La religion avait un effet significatif sur le changement d'aliment et le changement de comportement d'aliment. Le revenu avait un effet significatif sur le changement d'état de santé.

Deux facteurs (facteur un: le facteur du changement de comportement d'activité physique et facteur deux: le facteur du changement de croyance d'exercice physique) influençaient significativement le changement d'activité physique. Cependant, facteur un avait un effet plus significatif que facteur deux. Un facteur (facteur un: le facteur du changement de comportement d'aliment) influençait significativement le changement de comportement d'aliment; autre facteur (facteur deux: le facteur du changement de croyance d'aliment) n'affectait pas significativement le changement de comportement d'aliment.

Le changement de comportement de mode de vie ne pourrait s'accorder complètement

avec le changement de croyance de mode de vie, mais le changement de comportement

de mode de vie avait un effet plus significatif sur le changement de mode de vie que

l'action du changement de croyance de mode de vie. Les différences culturelles et

acculturées pourraient être associés avec les disparités des changements de mode de vie

et la disparité du changement d'état de santé des sous-groupes immigrés. Les résultats du

sondage soutiennent « l'effet de l'immigrant en bonne santé » dans les pays qui reçoivent

des immigrants. « Le déclin à l'état de santé des immigrants » au cours du temps a existé

aux quelques-uns des sous-groupes immigrés. Les connaissances fondées sur la recherche

multiculturelle des changements de mode de vie pourraient être traduit aux politiques,

programmes et pratiques en santé au Canada.

Mots clés: l'immigration, les sub-groups immigrés, le développement de

questionnaire, le pilote-teste, la validité, la fiabilité, le changement de mode

de vie, le changement d'état de santé, la culture, la multiculture,

l'acculturation, le pourcentage, le niveau de signification, l'analyse

multivariée, l'analyse factorielle, la traduction des connaissances.

调查加拿大渥太华和加蒂诺市的英文，法文和中文移民的

生活方式改变

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摘要

(中文/Chinese/Chinois)

一份新设计的包括英文，法文和中文版本的多元文化的生活方式改变问卷在加拿大的两个相邻城市（渥太华市和加蒂诺市）的 121 名移民（英文，法文和中文移民分别为 41，42 和 38 人）中被小规模试验。试验结果显示：这一问卷具有高的真实性和可靠性。该问卷被适当修改后用于捡验这两个城市中的英文，法文和中文移民生活方式改变的多元文化调查。

在这两个城市的目标人群中的 810 名移民（英文，法文和中文移民分别为 278，278 和 264 人）通过目的性抽样被招募到这一调查。通过自报告，参与者回答这一问卷中有关生活方式改变（吸烟，饮酒，情绪，睡眠，身体活动和饮食的行为改变和理念改变），健康状况改变和人口统计学（母语，能说语言，年龄，性别，婚姻状况，移民类别，在加拿大的生活时间，最高教育水平，雇用状态，主要职业，宗教和收入）的问题。百分比，显著性，多变分析（相关和回归分析）和因素分析方法被用于对移民亚组的数据的分析。

调查结果显示：不同性别，语言和类别亚组的移民在吸烟，饮酒，情绪，睡眠，身体活动，饮食和健康状况方面呈现不同的改变率。然而，除了类别亚组的移民在营养食品和垃圾与加工食品消耗的增加和减少率之间有显著差异外，在这些改变率之间无统计学上的差异。不同人口统计学的因素与这些生活方式改变相关或显著地影响这些改变。

母语与吸烟改变和吸烟行为改变，饮酒改变，情绪改变，睡眠改变和睡眠行为改变相关。能说语言与情绪改变和饮食改变相关。年龄与睡眠改变和睡眠行为改变，身体活动行为改变，饮食改变，健康状况改变相关。性别与吸烟改变和吸烟行为改变，饮酒改变和饮酒行为改变，身体活动改变和身体活动行为改变相关。婚姻状况与情绪状态改变相关。移民类别与吸烟改变，饮酒行为改变，身体活动改变和身体活动行为改变相关。在加拿大的生活时间与吸烟改变和吸烟行为改变相关。最高教育水平与情绪状态改变相关。雇用状态与身体活动改变和身体活动行为改变相关。主要职业与睡眠改变和睡眠行为改变，身体活动改变和身体活动行为改变，健康状况改变相关。宗教与饮食改变和饮食行为改变相关。收入与健康状况改变相关。

母语显著地影响饮酒改变，情绪改变，睡眠改变和睡眠行为改变，身体活动行为改变和健康状况改变。能说语言显著地影响情绪和饮食改变。年龄显著地影响吸烟改变和吸烟行为改变，睡眠改变和睡眠行为改变，身体活动改变和身体活动行为改变，饮食改变。性别显著地影响吸烟改变和吸烟行为改变，饮酒改变和饮酒行为改变，身体活动改变和身体活动行为改变。婚姻状况显著地影响情绪状态改变。移民类别显著地影响身体活动改变和身体活动行为改变。在加拿大的生活时间显著地

影响吸烟改变。最高教育水平显著地影响情绪改变和情绪状态改变。雇用状态显著地影响身体活动改变和身体活动行为改变。主要职业显著地影响睡眠改变和睡眠行为改变，和健康状况改变。宗教显著地影响饮食改变和饮食行为改变。收入显著地影响健康状况改变。

两个因素（因素一：身体活动行为改变因素和因素二：身体锻炼理念改变因素）显著地影响身体活动改变。但因素一比因素二有更显著的效果。一个因素（因素一：饮食行为改变因素）显著地影响饮食改变；另一个因素（因素二：饮食理念改变因素）并非显著地影响饮食改变。

生活方式行为改变不可能与生活方式理念改变完全一致，但它比生活方式理念改变更显著地影响生活方式改变活动。文化和文化移入的差异可能与移民亚组的生活方式改变的差异相关。这一调查结果支持在移民接收国的"健康的移民效应"。随时间推移的"移民健康状况的下降"存在于某些移民亚组。多元文化生活方式改变的研究知识可以转化为加拿大的卫生政策，计划和实践。
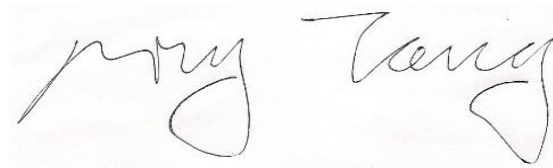
Declaration

I certify that this work does not incorporate without acknowledgment any material

previously submitted for a degree or diploma in any university; and that to the best of my

knowledge and belief it does not contain any material previously published or written by

another person except where due reference is made in the text.

Student:

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"The greatest distance between people is not space, but culture."

--- Jamake Highwater. The Primal Mind: Vision and Reality in Indian America. 1981. New York: Harper and Row, Publishers.

"**Cultural factors influence health behaviors and health-related quality of life**".

--- Lim J-W, Gonzalez P, Wang-Letzkus MF & Ashing-Giwa KT. Understanding the cultural health belief model influencing health behaviors and health-related quality of life between Latina and Asian-American breast cancer survivors. Support Care Cancer, 2009, 17:1137–1147.

"The process of acculturation presents numerous challenges and life changes that could potentially benefit or adversely affect the health of immigrants".

--- Abraido-Lanza AF, Armbrister AN, Flórez KR and Aguirre AN. Toward a Theory-Driven Model of Acculturation in Public Health Research. Am J Public Health, 2006, 96:8 (1342–1346).

"It is important to not only consider how acculturation is related to health, but how the acculturation process differs across population subgroups".

--- Lopez-Gonzalez L, Aravena VC, Hummer RA. Immigrant Acculturation, Gender and Health Behavior: A Research Note. Social Forces, 2005, 84: 1 (581-593).

"The health of Canada's immigrants is one important determinant of the costs and benefits of immigration policy".

--- McDonald JT, Kennedy S: Insights into the "healthy immigrant effect": health status and health service use of immigrants to Canada. Soc Sci Med, 2004, 59: 8 (1613-1627).

Ottawa (Ontario) -- Gatineau (Québec) Region in Canada

Notes: Canadian Official Languages: *English* and *French*; Official Language of Ontario Province: *English*; Official Language of Québec Province: *French*; the third largest language in Canada: *Chinese*.

In the Ottawa-Gatineau region, Canada, English speaking immigrants are the largest language immigrant sub-group, French speaking immigrants are the second largest language immigrant sub-group, and Chinese speaking immigrants are the fourth largest language immigrant sub-group.

Chapter 1

Introduction

Today, there is a growing need for preventing and controlling diseases, improving public health, ameliorating individual quality of life and extending life-span in all of countries, particularly including improving immigrant health and meliorating immigrant quality of life in all of immigrant-receiving countries [Charnley 2008, WHO 1998a]. Lifestyle and health status change of immigrants as a public health problem has recently become focus of immigrant health research [McDonald 2004, MacPherson 2004]. It is essential for public health research and health policy-making to examine by a specific and cultural sensitive instrument how immigrants change their lifestyle behaviors and beliefs as they adapt to Canadian lifestyles and how health status change immigrants occur as they adjust to Canadian environment [Tremblay 2006].

1.1. Research question, aims and objectives

The multicultural health research question was to *examine lifestyle changes of immigrants* in Canada. The research aimed at developing a valid and reliable multicultural lifestyle change measuring instrument and examining immigrant lifestyle changes. The research objectives were to construct a Multicultural Lifestyle Change Questionnaire that included English, French and Chinese versions, to rigorously pilot-test the newly developed instrument with regard to its validity and reliability, to use the questionnaire to examine lifestyle (smoking, alcohol consumption, mood, sleep, physical

activity and dietary) changes and health status change of immigrant gender (men and women), language (English, French and Chinese speaking) and category (Principal Applicant, Spouse and Dependent, Family Class and Other/Refugee) sub-groups in Ottawa and Gatineau, Canada, and to identify demographic factors that were correlated with the changes and/or influenced significantly the changes.

1.2. Knowledge gap of health-related multicultural lifestyle research

1.2.1. Lack of multicultural lifestyle change surveys

With acceleration in globalization and growth in immigration, survey organizations around the world faced a growing need to collect data from respondents of different cultural background [Harkness 2010]. The majority of the multicultural health studies in Canada concentrated on measurement of lifestyles patterns and health beliefs impacting lifestyles [Méjean 2007, Lim 2009, Roy 2009], and comparison of lifestyles between immigrant population and Canadian-born population rather than measurement of immigrant lifestyle changes and comparison of lifestyle behavior and belief changes of different cultural groups and/or sub-groups [Darmon 2001, Gee 2004, De Maio 2010].

Meanwhile, the relatively small number of lifestyles studies focused typically on one specific behavior (i.e. exercise or diet), which was in relation to one outcome (i.e. coronary heart disease or overweight), and on a lifestyle pattern (i.e. dietary pattern or physical activity pattern), which combined one or two behaviors, rather than on diverse lifestyle patterns and combining multiple behaviors and beliefs [Wannamethee 1998].

1.2.2. Lack of multicultural measuring instruments and researchers

At present, though some of health survey researchers have constructed some questionnaires for different cultures and used them in some of multicultural health surveys, public health surveys still lack valid and reliable multicultural measurement instruments to assess lifestyle and health status changes in diverse cultural immigrant sub-groups [Vereecken 2010], which could be due to a shortage of multicultural and multilinguistic health researchers with skills of cross-cultural questionnaire development and analysis capacities of questionnaire responses [Kristiansen 2007, Roy 2009].

1.2.3. Significance of the multicultural lifestyle change survey

The multicultural lifestyle change survey might partly fill gap of multicultural health research because of the significant characteristics: (1) it was a *lifestyle change survey* instead of a lifestyle pattern survey, (2) it was a *multicultural health survey in immigrant population* rather than in general population, (3) it needed *developing and testing a specific multicultural questionnaire, and using the questionnaire to perform the immigrant lifestyle change survey* rather than applying a existing questionnaire to complete a survey. Therefore, the multicultural lifestyle change research could provide valuable data of lifestyle changes of different cultural immigrant sub-groups for multicultural health research, multicultural health policy-making and programme-making, and development of multicultural health practice [WHO 2005a, WHO 2008, McDonald 2010]. Obviously, the immigrant lifestyle changes should be examined by the aid of a specific multicultural questionnaire.

1.2.4. Significance of the multicultural lifestyle change questionnaire

The multicultural lifestyle change questionnaire could partly fill lacuna of multicultural health research instrument, because of the significant characteristics: (1) it *was an instrument examining immigrant lifestyle changes* instead of lifestyle patterns, (2) it could *allow examination of immigrant lifestyle changes and comparison of lifestyle changes between different cultural immigrant sub-groups* rather than examination of lifestyle patterns of general population and comparison of lifestyles between native-born group and immigrant group, (3) it could be applied in examining *multiple lifestyle changes rather* than one or two lifestyle changes, and (4) it *was* a *trilingual instrument that included English, French and Chinese versions* instead of monolingual or bilingual instrument. Accordingly, a valid and reliable multicultural lifestyle change instrument might meet wide needs of multicultural lifestyle study, immigrant health promoting assessment and multicultural health research, education and training in the immigrant-receiving countries. The multicultural lifestyle change instrument will be used in cross-sectional or long-lasting multicultural health survey in different cities, regions and countries for evaluating immigrant lifestyle change and health status change. Without question, development of a multicultural questionnaire and a multicultural survey need the involvement of multi-disciplinary researchers.

1.3. Multicultural lifestyle change research team

A principal survey researcher should decide who should be involved in the research process. Key people became members of the research team, who involve in the research planning, questionnaire construction, data collection, data analysis and interpretation.

Other assisting people might be "helpers", "assistants" or "advisors", who involve in some aspect or stage or full implementation in the survey [Taylor-Powell 2000a].

The multicultural lifestyle change research team consisted of the principal researcher and his supervisor(s), which were key people of the multicultural research. Some of research staff in School of Health Sciences, Flinders University involved in some stage or aspect. The immigrant and multicultural health experts, questionnaire development experts, data analysis specialists, bilingual teachers, and research assistants served in advice and assistance of the multicultural lifestyle change research.

1.4. Ethical approval

The multicultural questionnaire-based research study that collected immigrant personal information which could be linked to individual human subjects was designed and conducted in an ethical manner that protected the multicultural research subjects. The multicultural lifestyle change research project was approved by Social and Behavioural Research Ethics Committee, Flinders University in Australia in 2010 (Project No: 5047) and by Office of Research Ethics and Integrity, University of Ottawa in Canada in 2014 (File Number: H03-14-05). The final project title was "Examining Immigrant Lifestyle Changes: A Canadian Multicultural Study".

Chapter 2

Literature Review

2.1. Lifestyle and health

World Health Organization (WHO) has defined "lifestyle" as being based upon "identifiable patterns of behavior which are determined by the interplay between an individual's personal characteristics, social interactions, and socioeconomic and environmental living conditions" [WHO 1998a]. Lifestyle can have a profound effect on mental and physical health [McKay 2003, WHO 1998b, WLT 2010].

Modern society has eliminated or minimized the effects of many communicable diseases (i.e. typhoid, malaria, leprosy, measles, tuberculosis, small pox and etc), but there was still a big struggle with regards to controlling chronic non-communicable diseases that could be prevented and/or improved by modifying one's lifestyle. The unhealthy lifestyles or the negative lifestyle changes may lead to chronic diseases and increase risk of certain chronic diseases [Yang 1996, Kenney 2000, Sassi 2008, Méjean 2008, Lövdén 2013]. However, the healthy lifestyles or the positive lifestyle changes could reverse the chronic diseases and help to maintain a healthy state of body and mind, because health was determined partially by lifestyle, which depended on preferences, budget and time constraints and unobservable characteristics [Stroebe 2000, Contoyannis 2004, McReynolds 2004, Enlin 2007]. The unhealthy lifestyle factors, such as smoking, excessive alcohol consumption, long-term stress and anxiety, not enough sleeping and low sleeping quality, physical inactivity, consumption of high fat diets, and inadequate

fruit and vegetable intake were major determinants of morbidity and mortality [ILC 2000, Boström 2001]. Unfortunately, it has been shown that deterioration of the health-related lifestyles was closely and strongly linked to immigration [van Dam 2008].

2.2. Immigration and immigrant lifestyle changes

Immigration is a world-wide phenomenon, involving many millions of people and most countries [UNPD 2002]. 20th century and 21st century have showed a number of fundamental changes in the ways in which countries inter-relate, in the demands and pressures on people to move between countries, and in the patterns of health associated with those new spatial and social interactions [Carballo 2005, Wang 2006, Adhikary 2008]. In some areas of the world, population pressure and growing relative poverty have continually impelled people to seek alternative lifestyles elsewhere and to move from poorer countries to what were perceived to be economically better countries [Papadopoulos 2004, Kristiansen 2007, Adhikary 2008].

International migration could lead to immigrant lifestyle changes and health status change because of bio-geographical and socio-economic changes, westernization and acculturation [Satia-Abouta 2003, Lee 2006, McDonald 2006, Connell 2009]. However, not all immigrants underwent same or similar lifestyle changes. Some of immigrants may not undergo significantly lifestyle and health status changes. For instance, many of English-speaking immigrants from USA, Australia, New Zealand, UK and Ireland could experience minimal social disturbance and lifestyle change after moving to Canada [Gushulak 2010].

2.3. Canadian immigrants and their lifestyle changes

Canada is an immigrant country and a complex plural society made of groups and sub-groups with multiple ethnic and linguistic origins [Christopher 2001, SC 2003a, SC 2003b]. Immigrants represented two-thirds of Canada's population growth, made up approximately 20% of the nation's population and will continue to account for a significant portion of the country's population in the future [Dean 2009, Gushulak 2010-CMAJ]. In large cities, particularly, Ottawa (Ontario) – Gatineau (Québec) region ranked fifth in having the largest proportion of foreign-born people (3.3%) and new immigrants (3.2%) of different linguistic and cultural backgrounds since 2006 [SC 2009a].

2.3.1. Immigrant health-related lifestyle changes in Canada

Major modifiable health-related lifestyles include smoking, alcoholic consumption, mood, sleep, physical activity and diet [CDC 1999, Galobardes 2003, Anand 2008, Li 2009, Freyer-Adam 2011]. However, the different immigrant groups or sub-groups in Canada can have different lifestyles and lifestyle changes [Shatenstein 1998].

2.3.1.1. Smoking

Smoking is one of major modifiable health-related lifestyle risk factors [CDC 1999, Galobardes 2003, Anand 2008, Li 2009]. Addiction to tobacco has been identified as the largest single factor of ill-health and premature death in Canada [Lyons 2000]. Early immigration could lead a number of Canadian immigrant groups to exhibit significantly lower rates of daily smoking [McDonald 2005]. Especially, non-European immigrants were less likely than other Canadian people to become daily smokers [Ng 2005].

Immigrant youth in Canada were less likely to engage in tobacco use because they were less probably to affiliate with peers who smoked and more likely to come from families where parents do not smoke [Georgiades 2006]. For example, a cigarette smoking survey of high school students in Toronto displays that there was no apparent increase in smoking rates for immigrants after two or more years in Canada [Holowaty 2000]. Similarly, it has been observed that cigarette smoking of Canadian immigrant women did not change with extension of the time they resided in Canada [Hawkins 2008]. Furthermore, a survey in the United States reveals that Asian and Pacific immigrants exhibited significantly lower smoking prevalence rates than non-immigrants, but the rates varied according to country of birth [Baluja 2002]. In contrast, other study shows that incidence of smoking among immigrants increased with the length of residence in Canada [McDonald 2006]. Most of the studies examining smoking among immigrant communities have been guided by the framework of "acculturation" [Choi 2008, Burgess 2014]. However, less is known whether the disparity in smoking behaviour and belief changes varied across different cultural immigrant sub-groups.

2.3.1.2. Alcohol consumption

Alcohol consumption and heavy drinking differed between immigrants and Canadian-born residents and varied with length of residence in Canada [Pérez 2002]. Generally, Canadian immigrants showed lower rates of alcohol consumption and binge drinking than Canadian-born residents [Ali 2002, McDonald 2005]. In particular, English and French speaking immigrants from Africa had the lowest rates of alcohol dependence in Canada [SC 2002]. Alcohol consumption of some of immigrant men increased with years

spent in Canada, but no significant change was observed in immigrant women [McDonald 2006]. The majority of Canadian immigrant youth aged 15 to 25 drank alcohol occasionally [Mulira 2010]. A study exposes that immigrant youth who have been in Canada for less than 10 years were less likely to drink than Canadian-born youth [Kunz 1999]. Nevertheless, no study has compared alcohol consumption between different cultural immigrant sub-groups.

2.3.1.3. Mood

Immigrants face greater mood change, higher levels of stress and anxiety associated with leaving their native country [García 2008]. However, different immigrant groups or sub-groups can experience different mood change or have different levels of stress and anxiety [SC 2002]. For example, Asian immigrants in Canada had the lowest rates of stress and depression [SC 2002]. Amongst other groups or sub-groups, stress related to acculturation can be much higher. For instance, Pakistani immigrant women showed higher stress levels after arrival in Canada due to inaccessibleness of high expectations and goals (better quality of life and better futures) of immigration [Khan 2005], while Canadian Chinese students experienced higher anxiety or greater mood change compared to Canadian English students and Canadian French students [Chataway 1989]. Many studies in Canada show that elderly Chinese immigrants had higher level of stress and anxiety because of language and cultural barriers associated with the new social environment [Lai 2000, Lai 2004a, Lai 2004b, Lai 2004c]. Nevertheless, there is no literature that directly compared Chinese, English and French immigrants in terms of mood change. Little research has taken into account specifically cultural and acculturated

expressions of anxious mood, but the manifestation of cross-cultural differences in mood

may be valuable for health research and assessment [Cortes 2003, Ramos 2005].

2.3.1.4. Sleep

Immigrants can have changes of sleep duration and quality after immigration

[Seicean 2011], and immigrant status impacted sleep duration [Williams 2014]. A study

shows that time and quality of sleep were severely affected among women immigrating

to Canada [Voss 2008]. Other study exhibits that first generation Korean-American older

adult immigrant men and women reported sleep interruptions and dissatisfaction with the

quality of their sleep [Sok 2008]. However, immigration could impact differently women

of various ethnic backgrounds. Indeed, it has been shown that Chinese immigrant women

have more sleeping problems than women belonging to other racial groups or sub-groups

[RGPTG 2001]. Similarly, some of studies demonstrate that Chinese immigrants, in

particular elderly Chinese immigrants, had more sleeping problems (i.e. lost sleep, had

many dreams and nightmares, and waked up early) compared to Canadian counterparts

[RGPTG 2001, Hsu 2001, Liu 2007, Leung 2007]. Nevertheless, no research has directly

compared the difference between male and female sub-groups, between Chinese sub-

group and other language sub-groups (i.e. English and French speaking sub-groups), and

between different category sub-groups in sleep behavior and belief changes.

2.3.1.5. Physical activity

Generally, one of the largest changes in post-immigration lifestyle was related to

physical activity level. Most of immigrants reported changes in physical activity since

leaving their home countries, and exhibited less physical activity after immigration

[Himmelgreen 2007]. It has been known that Canadian immigrants displayed lower participation in vigorous physical activity [McDonald 2004, McDonald 2005], and they were less active during leisure time [Ng 2005]. Indeed, Canadian non-European or non-Western immigrants, who were mainly Asian and African immigrants, were somewhat more likely to have become physically inactive during their leisure time than European or Western immigrants in Canada [Ng 2005, Hosper 2007]. A Canadian survey shows that immigrant youths were less active than their Canadian-born peers [Kukaswadia 2014]. However, no study has directly compared difference in physical activity behaviors and physical exercise beliefs in different gender, linguistic and category sub-groups.

2.3.1.6. Diet

Nutrition or diet is considered a key lifestyle contributor in reducing or causing chronic diseases [Yusuf 2001, Satia 2009]. Dietary intake is an important determinant of obesity and numerous chronic conditions. A healthful diet is an essential component maintaining and improving health [Ayala 2008]. Immigrants could have higher rates of mortality and morbidity linking to nutrition-related noncommunicable diseases in most host countries [Méjean 2007], because immigrants are at risk of poor nutrition due to economic or adaptive factors such as different food preferences and customs, special needs, language barriers [Garcia 2003, Johnson 2003, McDonald 2005].

Usually, immigrants to move to western countries have arisen important modifications in dietary pattern and practices, food preparation habits, dietary and nutritional beliefs after arrival in the host countries according to the availability of food and dietary acculturation [Dubowitz 2008, Duffey 2008, Garcia 2011, Andreeva 2014],

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but they could both adopt some of new dietary practices in the countries and maintain some of the traditional dietary practices [Yang 1996, Azar 2013]. For example, Asian immigrants the United States both adopted western-style hamburger breakfasts and ate traditional evening meals [Lockyear 2004]. Similarly, many of Canadian immigrants consumed more Canadian convenience food, but also ate traditional aliment. For instance, Chinese immigrants in Canada consumed both Italian pizzas and Chinese dumplings (jiaozi) [Lv 2008]. Especially, the immigrants from non-western countries consumed healthier diets before arrival in Canada, but they could eat more unhealthy foods after arrival in the host country [Hyman 2002]. Yet, no study examined dietary changes of different immigrant sub-groups simultaneously enabling a direct comparison in the disparities of the changes.

2.3.2. Lifestyle changes of English, French and Chinese immigrants in Canada

It has been known that Canadian immigrant population consisted of more linguistic and cultural sub-groups compared with other immigrant countries. Lifestyles and lifestyle changes of Canadian immigrants showed both generalization and specification [Gushulak 2010a]. Because of difference of language, culture, acculturation, each immigrant sub-group in Canada could exhibit specific lifestyles and lifestyle changes [Gushulak 2010a, Gushulak 2010b]. A study shows that some of cultural immigrant sub-groups, such as English, French, Italian and Greek sub-groups in Canada, had different lifestyle patterns due to their linguistic and cultural difference [Hui 1993].

2.3.2.1. English speaking immigrants

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English speaking immigrants represent one of the largest immigrant sub-groups in Canada and are the largest sub-group in Ottawa (Ontario) – Gatineau (Québec) region [SC 2009a, SC 2011]. The lifestyles of English immigrants, in particular dietary behavior, could be more greatly influenced by the lifestyles of the host country and other immigrant sub-groups [O'Reilly 2005, Fontinau 2009]. The immigrant populations were often found to be, on average, more obese relative to living in their native countries, because they consumed more energy dense foods which contained high levels of fat, protein, sugar and salt (i.e. convenience foods, chocolate candy, and salty snacks) in the host country [Norman 2004, O'Reilly 2005]. English immigrants could exhibit higher eating disorders as compared with other language sub-groups in Canada [Boisvert 2009].

2.3.2.2. French speaking immigrants

French speaking (francophone) immigrants are one of the principal immigrant sub-groups in Québec and the second largest sub-group in Ottawa – Gatineau region [Roy 2007, SC 2009a, SC 2011]. French immigrants have a greater allegiance to maintain their native or French cultural lifestyles in spite of immigrating to the host country, because they regarded Canada as similar culturally to France, Belgium and Switzerland [Beauregard 2008]. Their lifestyles might be less impacted by the host lifestyles and could change lesser [HEKS 2009]. For instance, Haitian Franco immigrants in Canada retained the French traditional food culture [Désilets 2006, Désilets 2007]. Meanwhile, Franco immigrants from Côte D'Ivoire in Atlanta, Georgia, USA maintained their traditional dietary habits [Rojas 2015].

2.3.2.3. Chinese speaking immigrants

Chinese (all dialects combined) is the third largest mother tongue in Canada after English and French [Lindsay 2001]. Chinese speaking immigrants made up the largest non-European ethnic minority in Canada, were one of the fastest-growing ethno-cultural groups in Canada since 1987 and the fourth largest sub-group following Arabic speaking immigrants in Ottawa - Gatineau region [Lindsay 2001, Man 2004, Lu 2008, Garcia 2011, SC 2011]. Chinese immigrants comprised an ethno-cultural sub-group that greatly differed from English and French immigrant sub-groups due to the disparity in lifestyles, and social, moral, linguistic and cultural environments they were born and raised in the native country (China) and native regions (Hong Kong, Taiwan and Macao), and acculturation [Rosenmöller 2011].

Therefore, because wide representativeness and great disparities of English, French and Chinese immigrants in culture, acculturation and lifestyle, the study and comparison of lifestyle changes of the sub-groups showed far-reaching significance in multicultural health research, health care and health promoting programs, and population health policy-making in Canada.

2.3.3. Lifestyle changes of category immigrants in Canada

According to visa application category of immigration from Government of Canada, immigrants in Canada were classified to Skilled Immigrant, Business Immigrant, Family Immigrant and Refugee [GC 2012]. Nevertheless, based on permanent resident category of immigration from Citizenship and Immigration Canada, immigrants in Canada were categorized to Principal Applicant Immigrant, Spouse and Dependent Immigrant, Family

Class Immigrant and Refugee [CIC 2012, GC 2013]. Immigrants of different category sub-groups in Canada could have different health status, lifestyles and lifestyle changes. However, there was little Canadian research on the disparities of lifestyle changes and health status change among category sub-groups at the quantitative level.

2.4. Health status alteration relating to lifestyle changes in Canada

Given that immigrants represent a large proportion of Canadian population growth, their health status and health status change are of particular interest to health researchers, policy-makers, and program officials [GC 2012, GC 2013], because demographic trends suggest that health status of immigrants and their descendants will play an increasingly central role in shaping population health outcomes (i.e. mortality or morbidity) of the immigrant-receiving country, and immigrants potentially offer significant analytical advantages for understanding the population health disparities in the host country [Jasso 2004, Lassetter 2009]. A Canadian health status data shows that the immigrants of recent arrival to Canada tended to be substantially healthier than the Canadian-born population, which appeared the existence of "healthy immigrant effect" [Ng 2005, Newbold 2003]. However, some of researchers indicate that the healthy immigrant phenomenon had not shown to be lasting, as immigrants' health tended to deteriorate with increase in time since arrival in Canada [De Maio 2010a], and immigrant health status converged with years in Canada to native-born levels [Ng 2005, Halli 2005, Newbold 2005a, Newbold 2005b]. It is worth noting that there was much speculation as to the reasons for the health status decline [McDonald 2005, Dean 2010, Subedi 2014]. The lifestyle change could be an important factor associated with a deterioration of health status. In particular, the

changes in smoking, alcohol consumption, mood, sleep, physical activity and diet might impact immigrant health status and health status change [Ng 2005, De Maio 2010b].

However, due to data limitations, there was little research on the disparities of health status among immigrant sub-groups in Canada [Bergeron 2009], and the diversities of their health status in pre- and post-immigration phrases. The difference of health status could be related directly to the disparities of immigrant lifestyle changes, because the change of their health status might reflect directly effectiveness of their lifestyle changes.

2.5. Measuring immigrant lifestyle changes

As immigrant population grew and influence of immigrant health status enlarged on population health, it is necessary to do more integrated and larger-scale research concerning health and lifestyles associating with immigrants [Méjean 2007]. The integrated measurement of immigrant lifestyle changes was essential and urgent for the major receiving country (Canada) in international migration with liberal immigration policy and a long record of assistance to refugees [Hawkins 1988], because lifestyle change measurement could assess adequately chronic disease risk of different immigrant sub-groups, contribute punctually immigrant health knowledge to policy-makers, improve effectively multicultural health promoting program and practice.

2.5.1. Measuring instrument of immigrant lifestyle changes:

One of the most effective ways to identify the immigrant lifestyle changes was through the use of lifestyle questionnaire survey [Charnley 2008]. Questionnaire is a complete data collection instrument used by an interviewer (qualitative study) or

respondent (quantitative study) or both during a survey [Franklin 1971, Bradbrun 2004]. Questionnaires have been applied in a wide range of settings to gather information about attributes, behaviors, beliefs and attitudes of individuals in social and health research, because they were relatively inexpensive to use, easy to analyze and could potentially reach a large number of people [McColl 2001, CDC 2003, Williams 2003, Radhakrishna 2007]. The use of questionnaires as a method of data collection in health research both nationally and internationally has increased in recent years [Rattray 2004, Rattray 2007]. Population-based research and surveillance required valid and reliable instruments for the assessment of lifestyle variables and demographic variables that might influence lifestyles. Of particular concern was the possibility that language and cultural variation in immigrant populations might make it difficult to develop such instruments so as to produce equally valid results for people with different nationalities and language skills [Warnecke 1997, Berrgan 2010].

2.5.2. Measuring instrument of Canadian immigrant lifestyle changes

Canadian immigrants consisted of different cultural groups or sub-groups. They could have diverse lifestyle patterns and lifestyle changes [McDonald 2005]. A multicultural lifestyle change survey allowed direct comparison of the lifestyle changes between different cultures by asking exactly the same questions to different cultures in an appropriate cultural-specific form for each of the three cultures. However, the survey required developing a specific measuring instrument of the multicultural lifestyle changes in Canada [Adhikary 2008, van Oudenhoven 2002, Day 2002]. It was anticipated that development and test of a trilingual multicultural lifestyle questionnaire examining the

lifestyle changes of English, French and Chinese speaking immigrants could contribute to multicultural health research and health promotion assessment [NMHCS 2007].

2.5.3. Lifestyle-related measuring instruments

The results of literature review show that there were no available multicultural and multilinguistic questionnaires related to lifestyle that could be employed directly in the development of the multicultural lifestyle change questionnaire to examine lifestyle changes of English, French and Chinese immigrants. Nevertheless, the somewhat similar lifestyle questionnaires, such as Fantastic Lifestyle Questionnaire [Wilson 1984], School Health Action Planning and Evaluation System-SHAPES of Waterloo [Manske 2005], Short-Form Health Survey 36 [Eshaghi, 2006, Nauman 2010], Participant Lifestyle Questionnaire of the HRS survey [Clarke 2008], Trafford Health and Lifestyle Questionnaire [Charnley 2008] and etc, contained relevant questionnaire sections, items and questions. Their items and questions were likely to be useful in construction of the multicultural questionnaire.

Chapter 3

Theoretical Framework of Multicultural Lifestyle Change Questionnaire Development and Multicultural Lifestyle Change Survey

3.1. Behavioral change theory and immigrant lifestyle changes

A lifestyle reflects an individual's attitude, value and worldview. Lifestyle change is in fact a health behavioral change or change of an action [Sniehotta 2005]. Therefore, investigating immigrant lifestyle changes would benefit from employing a behavioral change theory perspective. The theoretical framework can be applied to guide construction of culture-specific questionnaire for examining and comparing the disparities of behavior and belief changes of different cultural sub-groups, and a multicultural survey [James 2004, Bereolos 2007].

3.2. Health Belief Model and immigrant lifestyle changes

Health Belief Model as a behavioral change theory and a cornerstone of public health theory can be regarded as a theoretical framework to frequently assist in investigating health behaviors and behavioral changes (i.e. lifestyles and lifestyle modification), and health status of a population [Zimmerman 2000, Campbell 2001, Finfgeld 2003, Abraído-Lanza 2006, Ceccato 2007]. Essence of the HBM is that personal beliefs influence health behaviors [Turner 2004]. According to the HBM, the likelihood that someone will take

action to maintain health and prevent illness depends upon the individual's perception [Redding 2000, Roden 2004a, Roden 2004b].

Immigrants who come to the new country for changing living environment and acquiring more benefits are affected unavoidably by biological, geographic, social and cultural environment and acculturation of the host country [Juniu 2000, Lee 2006]. Immigrants can face new difficulties and barriers, but they can acquire new knowledge and experience, and change their traditional actions (health beliefs and behaviors). Therefore, the Health Belief Model was the most suitable model for explaining alteration of immigrant actions [Zimmet 2005, Groenewold 2006, Reiser 2007, Lim 2009].

3.3. Influence of culture on immigrant lifestyles

Culture is the "way of life of a society" or a set of socially transmitted and learned behavior patterns, beliefs, institutions and all other products of human work and thought [Cross 1994, Hofstede 1997, Csuti 2007]. Since the cultural milieu exerts a strong influence on the development and display of human behaviour, the change of cultural environment experienced by immigrants will inevitably lead to their action changes (i.e lifestyle changes) [Lonner 1986, Berry 1998, Shumaker 2009, UTN 2010].

It has been known that health behaviors, including lifestyle behaviors, can be influenced by unique culture [Benisovich 2003, Lim 2009]. Each culture has its own set of behavioral norms and conventions [Harkness 2010]. Culture may be a determinant of lifestyle choices [Frohlich 1999, Lyons 2000]. Unique cultural perceptions and experiences in the host countries may have implications for the patterns in which people engage in changing their lifestyle behaviors [Zimmet 2005, Willett 2009].

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Meanwhile, culture may be a main driver of health belief [Houston 1996]. Health belief of diverse immigrant groups or sub-groups is one of important cultural factors [Lyons 2000]. The immigrant traditional cultural beliefs about the body, health, illness, lifestyle and social norms did not suddenly disappear when they arrived in a new country [Houston 1996]. However, the traditional lifestyle beliefs could be influenced by the new lifestyle beliefs in the host countries and modified in cultural environments of the countries, and integrated with the host lifestyle beliefs [Benisovich 2003].

3.4. Culture Health Belief Model and multicultural lifestyle changes

Culture Health Belief Model (CHBM) is a new modified model where Health Belief Model merged with cultural, biological and geographic factors, and a suitable model to assist to perceive and understand culture-based actions (lifestyle behaviors and beliefs) of immigrants and explain the changes of their actions [Benisovich 2003, WHO 2007a, Joseph 2009, Newell 2009]. Obviously, different cultural immigrant groups or sub-groups could have different perceiving in susceptibility, seriousness, benefits and barriers to action [Groenewold 2006], which might lead to different changes in health behaviors and beliefs. The CHBM could inspire construction of the lifestyle behavior and belief change questions in the multicultural questionnaire.

3.5. Influence of acculturation on immigrant lifestyles

Acculturation has been defined as "culture change that is initiated by the conjunction of two or more autonomous cultural systems" [SSRC 1954, Trimble 2003]. Acculturation is an indication of the cultural change of minority individuals to the major culture

[Thomas 2006, Mainous 2008], and can explain the process of cultural and psychological changes of different cultural immigrants [Mainous 2008]. The effects of acculturation can be seen at multiple levels in both interacting cultures. At the group or sub-group level, acculturation often results in changes to culture, customs, and social institutions [Sanou 2014]. Its noticeable effects include changes in smoking, alcohol consumption, mood, sleep, physical activity, food and etc [Ma 2004].

It has been observed that acculturation may influence health behaviors, in particular lifestyle behaviors [Allen 2014], because the lifestyle behaviors of immigrants could be modified by their level of acculturation [Pérez-Escamilla 2007]. However, the effect of acculturation on certain lifestyle behaviors varied by different immigrant groups or sub-groups [Abraido-Lanza 2006]. Meanwhile, acculturation can impact health beliefs [Pérez-Escamilla 2007, Sussner 2008]. Different immigrants may have different change of health beliefs and practices because of their different acculturation level [Sussner 2008]. Immigrants could adopt lifestyle beliefs in the host culture, change their traditional lifestyle beliefs and form new lifestyle beliefs [Sussner 2008, D'Alonzo 2012]. Yet, immigrants do not always readily adopt cognitions of the receiving new culture, and acculturation cannot impact equally individual immigrant. For instance, the culturally significant parenting beliefs and traditional beliefs tend to resist the change of health beliefs [Ngo 1998]. At present, almost no studies involved in revealing impacting effects of acculturation on lifestyle behaviors and beliefs in different immigrant sub-groups.

Chapter 4

Development of Multicultural Lifestyle Change Questionnaire

A survey is a means of "gathering information about the characteristics, actions or opinions of a large group of people" [Tanur 1982]. Questionnaire surveys conducted for research purposes have three distinct characteristics. Firstly, the *purpose of survey* is to *produce quantitative descriptions* of some aspects of the study population. Secondly, the main *way of collecting information* is by *asking people structured and predefined questions*. Thirdly, information is *collected in a sample, sub-group, group, organization, community, city, region or country* [Pinsonneault 1993, WHO 2010a]. A questionnaire survey needs to apply an existing survey instrument to do the survey, or to develop a new specific survey instrument and to use the instrument to complete the survey.

Obviously, a survey instrument development must be preceded by certain prerequisites. Firstly, the focus of the study must be carefully defined. Secondly, the study objectives must be translated into measurable factors that contribute to the focus [Pinsonneault 1993]. Thirdly, the researcher must ensure that he or she is well versed in the topic [Salant 1994]. Finally, the survey must be consistently administered [Fowler 1995]. A multicultural survey needs to develop a specific and effective multicultural survey instrument [Hoffmeyer-Zlotnik 2005, SC 2009b, Harkness 2010, CSDI 2010].

4.1. Consultation of multicultural lifestyle change questionnaire development

Without doubt, sections or items or questions in a questionnaire can be generated from a number of sources including consultation with proposed respondents, experts in the field and reviews of associated literature [Priest 1995, Bowling 2002, McDowell 2006]. Firstly, consultation with subjects of the target population could help identify issues and concerns, and design better questions [Gower 1993]. The principal researcher consulted lifestyles and lifestyle changes of English, French and Chinese immigrants in Ottawa and Gatineau through contact and small seminars in the data collection sites. Secondly, a questionnaire designer should consult related experts for constructing effectively the questionnaire [Gower 1993]. The expert consultation of this principal researcher included: (1) *discussion with supervisor(s)*: discussing regularly with supervisor(s) and research staff for development methods and strategies of the multicultural lifestyle change questionnaire, conceptualization of questions, items, sections and questionnaire; (2) *contact with experts*: consulting extensively professional experts and specialists in multicultural health research and questionnaire development for construction of sections, items and questions in the questionnaire [Esposito 2002, Radhakrishna 2007, SC 2010]. Thirdly, survey questionnaire designers should review questions that were used in other surveys on the same or similar topic [Gower 1993, der Zee 2001]. The multicultural questionnaire designer consulted existing somewhat similar questionnaires to the multicultural lifestyle change questionnaire in literature, databases in universities and governmental agencies for designing effectively the questionnaire [SC 2010].

4.2. Methods and strategies of multicultural lifestyle change questionnaire development

A new questionnaire needs to be developed when a specific questionnaire does not

exist in previous surveys or the questionnaires related to the research objectives just are

not suitable for the survey [Harkness 2003, Tolonen 2005, Choi 2005]. No scientific

principles or rules guarantee an optimal, ideal or flawless questionnaire. *Questionnaire*

design is as much an art as it is a science [CDC 2003]. Questionnaires to be designed by

skilled researchers may have drawbacks. The creativity, skill and experience of survey

researchers play a major role in the end design. However, some of guidelines can assist

questionnaire development and help to avoid design mistakes [Malhotra 2006]. Methods

and guidelines of questionnaire development in some of textbooks or documents could be

applied in guiding construction of the multicultural lifestyle change questionnaire [Fink

2003, de Vaus 2002, CDC 2003, SC 2009b, Peterson 2000, Foddy 2001, Bradburn 2004,

Radhakrishna 2007, Bowling 2009, Harkness 2010, CSDI 2010, SC 2010, Martin 2010].

 It has been known that the main steps in designing a questionnaire included: deciding

data researchers need, selecting items for inclusion, designing individual questions,

composing wording, designing layout, thinking about scaling options and data entry,

preparing the first draft, pretesting and pilot-testing the questionnaire, evaluating the

form, and performing the survey [Stone 1993]. Design of questionnaire is often a very

long process and an extremely challenging assignment [Nieuwenhuijsen 2005, Ambrose

2010]. In particular, developing a multicultural and multilinguistic questionnaire is more

challenging and creative, but more significant and valuable for multicultural research.

Meanwhile, one of the most important considerations for a survey researcher is

whether respondents consist of a heterogeneous or homogeneous group. A heterogeneous

group may consist of people from different ethnic, cultural and social backgrounds. By

contrast, a homogeneous group may consist of individuals from similar cultural and socio-spatial backgrounds [Ross 1998]. The respondents of the multicultural lifestyle change questionnaire were composed of the heterogeneous groups – immigrant sub-groups with different cultural backgrounds. Thus, the multicultural questionnaire was designed to a specific standardized questionnaire that the immigrant participants of three language sub-groups were asked precisely to respond the same questions in an identical format and their responses were recorded in a uniform manner [Boynton 2004]. The multicultural questionnaire designer strived to secure that the instrument could be used in a different cultural context and the multicultural survey data via the instrument were comparable in studies concerning multiple cultures [Ross 1998]. The development of this multicultural lifestyle change questionnaire included general and specific designing steps.

4.2.1. Definition of target population

Target population of a survey should be firstly defined before beginning to design the survey questionnaire. A clear description of the target population allows the researchers to ask relevant questions and to formulate the questions in such a way that it is understood by the respondents [Eiselen 2005]. The target population of this multicultural health survey was defined as English, French and Chinese speaking immigrants of the first generation in Ottawa and Gatineau, Canada.

4.2.2. Definition of survey purpose

Survey research can be used for purpose of *exploration*, *description* or *explanation*. The purpose in *exploration* is to elicit a wide variety of responses from individuals with

varying viewpoints in a loosely structured manner, and to determine what concepts to measure and how to measure them best. The purpose in *description* is to find out what situations, events, attitudes are occurring in a population, and to describe and compare the distributions of some phenomena in the population. The purpose in *explanation* is to test or explain causal the relations between variables [Fowler 1984, Pinsonneault 1993].

The multicultural research focused on describing and comparing the distributions of the lifestyle change of three cultural sub-groups, and to explain the relationships between demographic variables and lifestyle variables. Thus, the multicultural lifestyle change survey was defined as a descriptive and explanatory research.

4.2.3. Definition of survey content

Definition of survey content means setting boundaries so that researchers can write the correct questions. Firstly, researchers should determine what to want to know and define any terms that may be ambiguous. Secondly, researchers should focus on their prior information needs, and make a distinction between what it would be nice to know and what they need to know. Thirdly, researchers should ensure that the potential survey respondents can actually provide the information. Finally, researchers should not include topics in the survey that they are not able to act upon or do anything about [Taylor-Powell 2000a]. Hence, content of the multicultural survey was defined clearly as the lifestyle changes and health status change of English, French and Chinese immigrants.

4.2.3.1. Specification of information collected

The first step of questionnaire survey should be to identify what kind of information is needed to answer the research question(s) [Salant 1994, Tolonen 2005], and to define what subject areas should be included in the study instrument [Ambrose 2010]. Language and context of the questions should be consistent with educational level and experience of the target respondents [Malhotra 2006]. The multicultural lifestyle change questionnaire was used in collecting mainly quantitative data of immigrant lifestyle changes in a standardized way [Wilson 1984, Charnley 2008]. Thus, the questionnaire was designed to answer the following research questions: "how were the lifestyle behaviors and beliefs of the immigrants before and after they arrived in Canada?"; "how were health status of the immigrants before and after they arrived in Canada?"; "how were demographic characters of the immigrants?". Then, the research questions were translated to the actual questions. Meanwhile, cultural background, educational level, ability and experience of the target respondents were considered fully when constructing the multicultural questionnaire [Taylor-Powell 1998, Malhotra 2006, BRUW 2011].

4.2.3.2. Identification of survey variables

The survey variables should be identified before the questionnaire is developed [CDC 2003]. There are two types of variables - *independent* and *dependent variables*. The independent variable is a variable that stands alone and isn't changed by the other variable the researcher is trying to measure [Bradbrun 2004]. The dependent variable is a variable that depends on other factors, such as attitude, behavior or belief [CDC 2003]. The variables of lifestyle behavior and belief changes in the multicultural survey were defined as *dependent variables*; and the demographic variables were defined as

independent variables. The multicultural project researcher did not select the measure variables which are likely change over short period of time, because the variables could produce low test-retest reliability in measurement instruments [Litwin 1995].

4.2.3.3. Definition of measurement levels of variables

Measurement levels of variables should be defined for determining the statistical techniques when designing a questionnaire [Eiselen 2005]. The levels include *nominal measurement* (distinction between different mutually exclusive categories), *ordinal measurement* (ranking categories), *interval measurement* (equal intervals between successive numbers) and *ratio measurement* (existence of an absolute zero value) [Eiselen 2005]. The measurement levels of the variables in the multicultural survey were defined as nominal, ordinal and ratio measurement, excluding interval measurement.

4.2.3.4. Assessment of validity and reliability

Two key characteristics in developing and testing survey questionnaires are the establishment of validity and reliability [CEC 2007]. Both of validity and reliability are essential for measurement of an instrument. Validity is not equal to reliability for an effective questionnaire. That an instrument is reliable does not mean it must be valid [Roberts 2006]. However, if an instrument is unreliable, it cannot be valid. Reliability is a prerequisite for measurement validity [Field 2003, Thanasegaran 2003]. On the contrary, an instrument is invalid, but it can be reliable. Validity is not essential for measurement reliability [Kimberlin 2008]. For example, if a test is so hard and no respondent could answer a single item, scores would still be consistent, but not valid.

1. Validity of questionnaire

Validity refers to how well a survey measures what it sets out to measure and is often defined as the extent to which an instrument measures what it purports to measure [Punch 1998, Bowling 2001]. Validity includes mainly face validity, content validity, criterion-related validity and construct validity [Eby 1993, Punch 1998].

Face Validity is extent to which a look at the question tells readers what is being measured [Miller 1995]. Generally, face validity depends on the cursory judgment of participants in the target population of the field [McDowell 2006, Kimberlin 2008]. Therefore, face validity is a weakest validity [Eby 1993].

Content Validity is extent to which the test items cover all aspects of the construct of interest [McDowell 2006]. Generally, content valid of an instrument is typically achieved by a rational analysis of the instrument by raters familiar with the construct of interest [Miller 1995]. Therefore, content validity is a weaker validity [Eby 1993, Bowling 2001].

Criterion-related validity is the measure consistent with what researchers already know and what resarchers expect or the consistency of test results with those of a reference criterion standard [Karras 1997, Stahl 2010]. If the scores of the measure validated is related highly to the criterion, the measure is valid. If not, the measure is not valid. Criterion validity is a stronger form of validity [Eby 1993, Kimberlin 2008]. Criterion-related validity could be assessed by Pearson's correlation coefficient (r) [Clay 2008, Said 2011, PEP 2013]. r values of 0.3, 0.5, 0.8 and 1 show respectively weak, medium, strong, perfect effect or correlation [Stahl 2010, PEP 2013]. The interpretation

of criterion-related validity is similar to test-retest reliability: the closer r to 1, the better the validity.

   Construct validity is traditionally defined as the experimental demonstration that a test is measuring the construct it claims to be measuring [Brown 2000, Bryant 2000]. It is consistency of test results with other tests or indexes purporting to measure similar characteristics, and the most valuable and most difficult measure of validity [Bryant 2000, Chapman 2003]. Construct validity may be assessed partly by Cronbach's alpha coefficient (α) or confirmatory factor analysis in the Structural Equation Modeling, but cannot be fully established [Westen 2003, Smith 2005, Said 2011, Atkinson 2011, Marsh 2013]. The interpretation of construct validity may be similar to internal consistency reliability: the closer r to 1, the better the validity.

   The validity of this multicultural lifestyle change questionnaire was assessed in face validity (immigrants' inspection), content validity (experts' review), criterion-related validity (Pearson correlation coefficient) and construct validity (Cronbach's alpha).

2. Reliability of questionnaire

   Reliability refers to the consistency or stability of the measurement process across time, persons or observers [Bryman 2004, McDowell 2006, Bowling 2002]. If a measurement device consistently assigns the same score to individuals or objects with equal values, the instrument is considered reliable [Thanasegaran 2003, McDowell 2006]. Reliability coefficients range from 0.00 to 1.00, with higher coefficients indicating higher levels of reliability [Kimberlin 2008, Wikipedia 2015]. Reliability includes test-retest

reliability, internal consistency reliability, inter-rater or inter-observer reliability and

parallel-forms reliability [William 2006, Graziano 2013].

Test-retest reliability (repeatability or reproducibility or stability) is the consistency

of a measure from one time to another and the most commonly used indicator of survey

instrument reliability [Trochim 2006a, Vaz 2013]. The reliability can be assessed with

Pearson's correlation coefficient (Pearson's *r*): the closer r to 1, the better the test-retest

reliability [Vaz 2013]. However, test-retest procedures may not be useful when

participants can recall their previous responses and simply repeat them upon retesting

[Litwin 1995, Roberts 2006].

Internal consistency reliability (homogeneity) is a measure based on the degree of

bivariate correlations between different items on the same test (or the same subscale of a

composite test) [William 2006, Tang 2014]. The reliability can be assessed with internal

consistency coefficient - Cronbach's alpha (α can be viewed as the expected correlation

of two tests that measure the same construct) [Miller 1995, Hopkin 2000, Tavakol 2011].

The closer α to 1, the better the internal consistency reliability [Nunnally 1994].

Inter-rater or inter-observer reliability (concordance) is the degree to which different

raters/observers give consistent estimates of the same phenomenon [William 2006,

Wikipedia 2016]. The reliability may be measured with joint-probability of agreement,

Cohen's kappa and Fleiss' kappa, inter-rater correlation, intra-class correlation, and

concordance correlation coefficient [Hallgren 2012, Wikipedia 2016].

Parallel-forms reliability (equivalence) is the consistency of the results of two tests

constructed in the same way from the same content domain, which is typically necessary

when two separate versions of an instrument are used, such as when the pre-test and post-

test are different [William 2006]. The reliability may be assessed with coefficient of equivalence [Webb 2006, OBSSR 2016].

The reliability of this multicultural lifestyle change questionnaire was assessed in the test-retest repeatability (Pearson's correlation coefficient) and internal consistency reliability (Cronbach's alpha). Inter-rater or inter-observer reliability and parallel-forms reliability were not used in assessment for reliability of the multicultural questionnaire because of their unsuitability in the research project.

4.2.4. Definition of questionnaire type

Generally, there are roughly two types of questionnaires: *unstructured questionnaire and structured questionnaire* [Fink 2003, de Vaus 2002, Harkness 2010]. Unstructured questionnaires list the topics to be covered but leave the exact wording and order of questions to the interviewer's discretion [Bradbrun 2004]. Structured questionnaires specify the wording of the pre-coded questions and the order in which they are asked [Bowling 2009]. A mixture of unstructured questionnaire and structured questionnaire is *quasi-structured questionnaire* [Acharya 2010]. The multicultural lifestyle change questionnaire was designed as a *quasi-structured questionnaire*, because it consisted principally of structured questions, but included some unstructured questions (i.e. " 'others' please specify" options and open-ended questions).

4.2.5. Definition of questionnaire administration mode

One of the main decisions to be made in designing a questionnaire and conducting a survey is choice of administration mode [McColl 2001], which may affect the

participation rate and accuracy and reliability of the responses [Koponen 2011]. A questionnaire can be administered in a variety of ways, such as in person or telephone by an interviewer, or through postal or electronic mail services. Usually, two main questionnaire administration modes or types are used in public health studies: *Interviewer-administration of questionnaire* and *Self-administration of questionnaire*, which can be further classified by the manner in which they are administered [Schwarz 1991, Garratt 2001, Bowling 2005]. Survey researchers should choose appropriately administration mode of questionnaire for increasing data quality and efficiency of data collection [CDC 2003], because each administration mode has potential strengths, weaknesses and necessitates according to the use of a certain type of questionnaire [Tolonen 2002, Tolonen 2005, Koponen 2008].

4.2.5.1. Interviewer-administration of questionnaire

Interviewer-administration of questionnaire is time consuming, carries additional labour costs and can introduce interviewing bias, but it can eliminate the issues of literacy level and visual impairment and also provide an opportunity for clarification if the questions are not well understood [Koponen 2008, Koponen 2011]. The multicultural research aimed at examining and comparing lifestyle change of immigrants of three cultural sub-groups instead of probing in depth their lifestyle content. Therefore, the interviewer-administered mode was not used in the pilot-testing of this questionnaire and the multicultural survey because of its unsuitability in the multicultural research project.

4.2.5.2. Self-administered questionnaire

Self-administration of questionnaire is the easiest and cheapest questionnaire administration mode, which requires least involvement from both subjects and researchers and provides more privacy for respondents [Tolonen 2002, Nieuwenhuijsen 2005], but the mode assumes that participants are not visually impaired and have a good literacy level [Salant 1994]. All questions in self-administered questionnaire should be simple, straightforward, relatively short, easy to answer, without complex skip patterns, and need to be completely self-explanatory [Nieuwenhuijsen 2005, Koponen 2008]. Self-administered survey can eliminate the interviewer effect but may result in missing data as a result of uncertainty about the questions [Koponen 2008, Koponen 2011]. The self-administered mode was applied in the pilot-testing of the multicultural questionnaire and the multicultural survey, as it was the most suitable mode and can decrease maximally biasing impact and improving data quality. Generally, the mode includes two sub-modes: (1) self-administration of questionnaire distributed and returned by mail and (2) self-administration of questionnaire completed in the presence of research staff [CDC 2003]. Each of the sub-modes has its advantages and disadvantages.

1. Self-administration of questionnaire distributed and returned by mail

Self-administration of questionnaire distributed and returned by mail can be rapidly and widely disseminated to a large number of potential respondents to collect information on a broad variety of topics. The mail questionnaire surveys are relatively inexpensive, eliminate interviewer bias and allow respondents to complete the questionnaire at convenience [Brennan 1992, Taylor-Powell 2000a]. The surveys are most proper in the following: (a) the researchers have a complete and accurate mailing list, (b) the potential

respondents have some interest in the survey topic and are likely to respond, (c) the respondents have adequate reading and writing skills, (d) the respondents need time to consider their answers, (e) the respondents' privacies need to be covered, (f) the researchers need to survey a relatively large number of respondents, and (g) the researchers have limited resources [Taylor-Powell 2000a].

Nevertheless, the sub-mode is generally not suitable for collecting sensitive and complex data and often initially meet with relatively low response as the respondents must interpret the questions by themselves without any clarification [Pinsonneault 1993, CDC 2003]. Moreover, respondents may skip some parts of the survey, consult others, look up the answers or invite others to fill out the questionnaire [Bowling 2009].

Therefore, the sub-mode by mail was not suitable for administration of the multicultural questionnaire pilot-testing and the multicultural survey, because the questions in the questionnaire could not be interpreted fully by the respondents and the qualification of the respondents could not be identified by mail.

2. Self-administration of questionnaire completed in the presence of research staff

Self-administration of questionnaire completed in the presence of research staff yields a higher response rate than the mail administration. The study staff may contact with respondents for clarifications regarding the study materials and monitor collection of data to a certain extent [Schoon 1998, CDC 2003]. The surveys of researchers' presence are appropriate when: (a) there is no list for the population being surveyed; (b) respondents cannot be reached by mail or telephone; (c) there is concern that respondents will not respond willingly or accurately; (d) the questions are sensitive, complex and may

need in-person explanation; (e) there is smaller sampling subjects; and (f) the budget is not an issue [Taylor-Powell 2000a].

The sub-mode often tends to be time consuming and expensive to implement. However it has certain strengths and yields the best results: (a) researchers can be more certain that the respondents are actually the subjects who answer the questionnaire; (b) researchers can personally explain the questionnaire and assure confidentiality of the respondents; (c) the related documents or other aids can be used to help understanding of questions and answer choices; (d) the personal approach of survey staff can help put the respondents at ease and increase willingness to participate [Taylor-Powell 2000a].

Consequently, the sub-mode was an optimal self-administered sub-mode for data collection of the multicultural lifestyle changes. The presence of principal researcher and research assistants might reduce response error and bias, and obtain data of high quality.

4.2.6. Borrowing questions and questionnaires

Before embarking on the design of new questions, it should be important to review the literature and evaluate the utility of similar questions from previous studies. The questions on the same topic that have been asked by other researchers can justify researchers' questions and provide the comparability of data collection instruments and findings [Converse 1986, Olsen 1998, CDC 2003]. Though satisfactory existing questions are unlikely to cover all the research questions of a study, the previously validated and published questionnaire and the existing questions in the questionnaire can save researchers' time and resources [Boynton 2004]. Moreover, the replicating nature of

survey research not only permits but encourages the repetition of questions, and no

permission from the originator of the questions is required [Bradburn 2004].

The search for existing questions or questionnaires sometimes becomes tedious and

time-consuming, but is time well spent. Even if the researcher use only a few existing

questions, the search can help to sharpen the research question and improve the quality of

the new questions. Hence, the multicultural questionnaire designer searched widely

existing questionnaires and borrowing properly some of questions and formats in the

questionnaires for assisting construction of the current questionnaire [Bradburn 2004].

4.2.6.1. Borrowing styles of questions and questionnaires

An important question to consider in the initial stage of questions or a questionnaire

involves style or method to borrow previous questions and questionnaires. When

designing the questions of a multultural questionnaire, three borrowing options should be

considered: *adoption*, *adaptation*, and *assembly* [Harkness 2003, He 2012].

1. Adoption

The first borrowing option is called *adoption*. The option is simple and cheap, has a

high face validity and content validity, and can maximize the opportunities for statistical

comparisons in a survey [Harkness 2010, He 2012]. However, the approach can only be

used when the items in the source and the target language versions have an adequate

coverage of the construct measured. [Harkness 2003]. On that account, the adoption was

impracticable for construction of the multicultural lifestyle change questionnaire and the

related questions, because there were not available multicultural lifestyle questionnaires and multi-lingual lifestyle questions.

2. Adaptation

The second borrowing option is labeled *adaptation*. The option has been chosen popularly in construction of psychological and health instruments [Hambleton 2005], and could examine psychological relevance of the multicultural instruments in the new context [Harkness 2003, Harkness 2010, He 2012]. The multicultural questionnaire designer could adapt properly some of questions in the previous lifestyle questionnaires to construct the questions in the current questionnaire. Hence, the adaptation option was practable partly for designing the multicultural questionnaire.

3. Assembly

The third borrowing option is called *assembly*. It is the only choice that remains if adopting or adapting an instrument will not produce an instrument with a satisfactory linguistic, cultural, and psychometric accuracy. An assembly maximizes the cultural suitability of an instrument, but it will preclude any numerical comparisons of scores across cultures [Harkness 2010, He 2012]. The multicultural questionnaire designer had to adapt some of questions in the previous lifestyle questionnaires and to create the new questions, then, to assemble a unique multicultural lifestyle change questionnaire. Accordingly, the assembly option was most suitable style for constructing the questionnaire, because this option could minimize bias of the multicultural measuring instrument [van de Vijver 2004, He 2012].

4.2.6.2. Borrowing assessment

Though many of instruments have been previously tested for validity and reliability, the instruments should be assessed before being borrowed to the current instrument. The assessment can provide information about the quality of data collected previously, and limit additional testing for the current study [Olsen 1998, Roberts 2006]. For that reason, the multicultural project researcher firstly evaluated the previous lifestyle questions and demographic questions, then, determined applicability of the questions to the current study population and setting [Berdie 1986, Fowler 1995, CDC 2003].

4.2.7. Definition of specific questions

Survey researchers should formulate the specific questions in order to answer the research question [Eiselen 2005]. The research question is most often general and involve abstract concepts that would not be easily understood by the respondents. Researchers should firstly identify key concepts, then, formulate specific questions that will measure the concepts [Bradburn 2004]. The multicultural questionnaire designer firstly identified the key concepts - *immigrant lifestyle (behavior and belief) changes*, then, determined the most representative sections and sub-sections of the topics [CDC 2003, van de Mortel 2009]. Afterward, the designer defined properly content of the questions in the sections and sub-sections (*see appendix 1: page 364*). Finally, the multicultural project researcher designed skillfully and elaborately the specific questions to measure the lifestyle changes.

4.2.8. Design of specific questions

A questionnaire is a group or sequence of specific questions designed to obtain information on a subject from a respondent. A good question is one that produces answers that are valid and reliable measures of something researchers want to describe [Fowler 1995]. Survey researchers should decide what questions to ask and what should be included in each question [Malhotra 2006]. Meanwhile, researchers should also determine how to best word the questions and how to arrange them to obtain information in such a way that respondents can understand correctly and provide the truthful answers, and that is suitable for subsequent processing and analysis of the survey data [SC 2010].

Consequently, all of questions in the multicultural lifestyle change questionnaire were designed properly and refined incessantly. Cultural Health Belief Model was used as theoretical framework of question construction [CDC, 2003, CSDI 2010]. The related cultural and acculturated factors were considered when constructing the questionnaire. The questions in the questionnaire was designed to: (a) focus on the topic of immigrant lifestyle change, (b) direct respondents to the information source, (c) encourage respondents to complete the questionnaire, (d) facilitate respondents' recall, (e) follow the logic of respondents, (f) flow smoothly from one question to the next [Gower 1993].

4.2.8.1. Content of questions

Questionnaire designers should ensure that all of questions can be understood and answered by all respondents [McColl 2001, CDC 2003]. However, respondents typically show a variety of characteristics, such as age, level of education and cultural background, which may influence how questions are understood and answered [Blom 2013]. Meanwhile, questionnaire designers should consider response processes of respondents:

understanding, retrieval, thinking/judging and communicating an answer [Sudman 1982, Gower 1993]. In general, respondents must first understand the question. Then, they search their memories to retrieve the requested information. After retrieving the information, they think about what the correct answer to the question might be and how much of that answer they are willing to reveal. Finally, they communicate or edit an answer to the question [Gower 1993, Martin 2010]. Additionally, the characteristics of respondents' race, culture and acculturation should be contemplated for the questions in a multicultural questionnaire [Hippler 1987, Warnecke 1997].

For that reason, the multicultural questionnaire designer decided firstly what information was required and what content should be included in each question. When writing the questions in each section, the designer fully considered characters of immigrant respondents. The questions in the questionnaire met the objectives to yield high-quality data: (a) each question should be interpreted equally by the respondents of three linguistic sub-groups in the same way and in a way that was consistent with what the investigator expected; (b) each question should specify the type of answer expected; (c) each question should ask something all respondents were able to provide; (d) each question should ask something all respondents were willing to provide [CDC 2003].

Obviously, a good question is one that yields a truthful, accurate answer [Bradbrun 2004]. When a respondent is concerned about the consequences of answering a question, there is a possibility that the answer will not be truthful. The multicultural questionnaire designer attempted to construct the questions which the immigrant respondents were able to and willing to provide truthful and accurate information. The following factors were considered when designing content of the questions in the multicultural questionnaire.

1. Designing questions that the respondents interpret equally

In order to answer a question, respondents must first understand what they are being asked [SC 2004]. Since individuals use their life experience to interpret requests for information, the study populations that are diverse with respect to ethnicity, age, education, or other cultural factors will interpret and respond to questions differently [Warnecke 1997]. As a result, investigators must carefully examine the way respondents interpret key words and phrases before questions are finalized [Salant 1994, CDC 2003].

(1). Using unambiguous words

The words used in the questionnaire should be understood clearly by the respondents [Willis 1999, CDC 2008, McIntyre 2010]. Questionnaire designers should choose words with only one meaning [Acharya 2010]. Given that a number of words that appear ambiguous can have different meanings to different people, these include some of adverbs (i.e. usually, normally, frequently, sometimes, occasionally, seldom and rarely), some of adjectives with high or low variability (i.e. several, many, most, lots, almost all, a small number of, a few, almost none), vague descriptive words (i.e. old or healthy), and evaluative words (i.e. good or bad) [CDC 2003, Malhotra 2006]. The ambiguous words should not be used in the questions. One solution to this problem is to offer participants more specific quantifiers, such as "never or almost never", "once or twice a month", "'once or twice a week" and "always or almost always" [Mullis 2007].

Therefore, the multicultural questionnaire designer used concrete and precise words in the questions, such as "Before arrival in Canada, on average, how much physical

exercise did you do each week?" instead of "usual or frequent physical exercises", so that the questions were clearer. The options were objectively defined, and the respondents were no longer free to interpret them in their own way. The specific qualifiers were designed to some of the response options. For example, an option was "You have never drunk alcohol (including any alcoholic beverage) at the question – "Which of the following best describes you" in Alcohol Consumption Change section.

(2). Using simple, non-jargon and non-technical words

The best way to communicate clearly with respondents is to use simple and straightforward words and to make sure that all terms are appropriate for the survey population [Willis 1999, CDC 2008, SC 2010]. The use of complex words, technical terms and jargon phrases either in questions or instructions can lead to respondents feeling stupid or uneducated and increase the probability of obtaining "don't know" or socially desirable responses [Foddy 1993, Thayer-Hart 2010, Acharya 2010, Lietz 2010]. Investigators should be aware of educational or reading level of the target population and communicate at that level [CDC 2003]. If a rare or technical term has to be used in a question or an option, its meaning should be explained. Acronyms and abbreviations should always be spelled out in the questionnaire. When a general term is used, concrete examples should be given to clarify its meaning [Ross 1998].

Consequently, concise, common, familiar words and sentences with correct or accurate terminology that match the educational level of the respondents were used in the multicultural lifestyle change questionnaire [Punj 1997, Walonick 1997, Burgess 2001], because, on average, the immigrants in Canada have a high school education instead of

college. For certain immigrant respondents, the education level can be primary school. Moreover, colloquialisms, slang, acronyms, abbreviations and technical words were not used in the multicultural questionnaire. Though technical terms and abbreviations may be appropriate when surveying college or university students, but they are often inappropriate for general population surveys [Patrick 2010, BRUW 2011]. When having to use some specific technical words or terms in some of the questions, the multicultural questionnaire designer defined clearly the words or terms. For example, "Very light" at the answer option in the question – "5.1.2.1. Before arrival in Canada, which of these descriptions best represents your physical activity level of each day?" was defined as "always sitting at work or home during a day, very little walking and housework". For the general terms to be used in some of the questions, concrete examples were given to clarify its meaning. For instance, the concrete example of "nutritional foods" in the questionnaire was "i.e. lean meat, fish, chicken, seafood, egg, fresh fruit and vegetable, etc". Furthermore, the words in questions were considered to be semantically, idiomatically, contextually or conceptually equivalent for English, French and Chinese, but some of words may be equivalent in semantic meaning but not in conceptual meaning [Oishi 2003], so that the immigrants can understand equally them.

(3). Avoiding questions with multiple ideas / concepts or double-barrelled questions

The introduction of multiple ideas can lead to asking two questions in one, or so-called "double-barreled" questions [Ross 1998, CDC 2003]. The questions may confuse respondents and cannot provide the information to seek [Taylor-Powell 2000b, SC 2010]. Questionnaire designers should avoid using three words as far as possible. (a). "And".

The word "and" can signal that researchers might be combining two questions and asking them as one question. (b). "Or". The word "or" is often associated with a double question or a false dilemma. (c). "If". The word "if" is often associated with confusing directions or with skip patterns [Bradburn 1979, Bradbrun 2004, Lietz 2010]. If designers have to use the words, they should review the questions containing the words to see whether they are likely to confuse the respondents [Brislin 1986, Brace 2004, SC 2010].

It is worth noting that double-barreled questions may be interpreted differently by various respondents because of their different backgrounds. Some of respondents may only understand and answer one part of the question while others will understand and answer the other part. According to the cognitive capacity, some respondents serve answers to the latter and others to the former [Acharya 2010, Thayer-Hart 2010].

Accordingly, double-barreled questions were avoided in the multicultural lifestyle change questionnaire. All of original double-barreled questions had been broken into two separate questions, such as the two separate questions in Demographic Question section were "Which is your mother tongue?" and "What language (s) can you speak?" instead of "What are your mother tongue and language (s) can you speak?".

(4). Avoiding loaded and leading questions

Questions that the investigator thinks it is of interest and suggests certain answers are called loaded questions [Foddy 1993, Bradburn 2004]. For instance, "Do you think that smoking should be banned in planes?". Loaded questions can elicit biased responses because they indicate what the answers should be or the investigator's own point of view [Oppenheim 1992]. Questions that give respondents an indication of what the socially

desirable answer are called leading questions [Eiselen 2005, SC 2010]. For example, "Do you agree with the majority of people that appropriate drinking beer is beneficial for your health?". Leading questions can lead respondents to particular directions or answers the sponsor would like to receive [Malhotra 2006, StatPac 2011]. All of the designed questions in the multicultural lifestyle change questionnaire were objective. Loaded and leading questions were avoided into the questionnaire.

(5). Avoid incomplete and overlapping response categories

Evidence shows that the key to conveying consistent meaning to respondents is to offer complete options [Foddy 1993]. However, the options should not be overlapping for avoiding confusing respondents [Salant 1994, Rea 1997, Tolonen 2005]. For example, the options of the question - "When was the last time before (*date*) that you had a breast physical exam?" are: "(a) Never", "(b) Within 1 – 2 years before given date", "(c) Within 3 – 5 years before given date", "(d) 5 or more years before given date". The response - "5 years" that was included in category (c) and (d) can lead to loss of data.

Accordingly, the multicultural questionnaire designer constructed complete categories and avoided overlapping options in the questions. For example, the question was constructed to "In the **last year before arrival** in Canada, on average, how much alcohol (beer, wine, or whisky) did you drink each day?", the options were designed to: "(a). 1/2 bottle of beer or less, or a glass of wine or less", "(b). 1 – 1.5 bottles of beer, or 2 – 3 glasses of wine", "(c). 2 – 3 bottles of beer, or 4 – 6 glasses of wine", "(d). 4 bottles of beer or more, or 7 – 8 glasses of wine or more", "(e). Do not know".

(6). Designing options accommodating all possible answers

The response options of questions should be exhaustive and accommodate all possible answers. If one is unsure whether all possibilities have been provided, it is important to include an option – "*Other (please specify)*" [Eiselen 2005]. On that account, the multicultural questionnaire designer constructed the options accommodating all possible answers, adding an option – "*Other (please specify)*" in the categories when necessary. For example, the question in Physical Activity Change section was constructed to "5.1.3.1. Before arrival in Canada, which physical exercises did you take part in **each week**?", the added option was designed to "N. Other (please specify): _____".

(7). Avoiding assumed or hypothetical questions

Researchers should avoid asking assumed or hypothetical questions [Patrick 2010, StatPac 2011], as respondents cannot interpret correctly the questions [Malhotra 2006]. For example, "Are you satisfied with your current short-term insurance?". The assumption of this question is that all the respondents have short-term insurance. Evidence shows that respondents tend to answer explicit and tangible questions that relate to their experience more reliably than assumed or hypothetical questions [Eiselen 2005].

Hence, the assumed or hypothetical questions were not designed to the multicultural questionnaire, because some original assumed questions had been broken into two separate topics. Though the respondents have to answer more questions, this approach could avoid confusion and yield data of higher quality. For example, "Since arrival in Canada, how changes have your daily physical activity levels had?" is an assumed question, which assumed that "respondent's physical activity levels" had changed. The

question was broken down into "Before arrival in Canada, which of these descriptions best represents your physical activity level of a day?", and "Since arrival in Canada, which of these descriptions best represents your physical activity level of a day?".

(8). Avoiding biasing questions

Bias refers to an estimate that is either more or less than the true value [Bradburn 2004]. Biased questions may influence people to respond in a way that does not accurately reflect their position. A question can be biased in the ways: (a) when it implies that the respondent should be engaged in a particular behavior; (b) when the response categories are unequal or loaded in one direction; (c) when words with strong positive or negative emotional appeal are used, such as "freedom", "equality", "bureaucracy" or others [Taylor-Powell 1998, Taylor-Powell 2000b]. Therefore, the multicultural questionnaire designer avoided to construct biasing words and sentences to the questions as far as possible.

(9). Constructing questions to produce variability in response

If a question is not sensitive enough to detect actual variability, the survey researchers will be unable to perform any statistical analysis on the items. If almost all respondents choose the same option, very little information could be learned [Bradbrun 2004]. For example, the question "Are you against the unlawful discharge of firearms within the city limits?" would have little variability in response and should not be asked.

Hence, the multicultural questionnaire designer constructed questions and options to produce variability in response. The questions could detect actual variability; a lot of information could be learned. For example, the question in Health Status Change section

was constructed to "7.1. Before arrival in Canada, how did you estimate your overall health status?"; the alternatives were designed to "A. Excellent", "B. Very good", "C. Good", "D. Fair", "E. Poor", "F. Very poor", "G. Extremely poor", "H. Do not know".

2. Designing specifying questions

If the question does not specify how it should be answered, respondents have to draw on clues from previous questions or their own frame of reference. The questions can increase response biases, affect validity and reliability of the questionnaire [CDC 2003].

(1). Specifying terms

The terms of survey questions should be as specific as possible for exactly understanding them [Brislin 1986, Dillmann 1993, SC 2010]. Specificity of terms in a question may reduce effectively the cognitive load on respondents, make the task easier, and result in more accurate answer [Jobe 1989, Martin 2002, Bradbrun 2004, White 2005]. Hence, the multicultural questionnaire designer defined the terms specifically when necessary. For instance, "sufficient sleep" was defined as "daily high quality sleep of 7-8 hours at least" in the sleep belief change questions. However, the designed terms or questions should not be too precise [Marshall 2009]. For example, the respondent can be hard to answer the question: "How many hours was your sleep time of last week more than that of first week after arrival in Canada?", as the question is too precise to answer.

(2). Using reference period

The reference period is the time frame the respondent is being asked to consider when answering a question, which should be simple and clear rather than leaving each respondent to make an assumption [Malhotra 2006, Acharya 2010, Thayer-Hart 2010]. A basic idea to consider a time period is that a person's accurate recall of a behavior is directly related to the amount of time elapsed and to the salience of the behavior [Bradbrun 2004]. Generally, periods of a year or longer and a month or less can be used respectively for highly and low salient topics. Therefore, the multicultural questionnaire designer selected an *appropriate* or *optimum time period* to ask about lifestyle behaviors and beliefs. Apparently, immigration is a highly salient event for each immigrant. Almost all immigrants can recall clearly their lifestyle behaviors before and after immigration. Thus, the reference periods were defined as "Before arrival in Canada" and "Since arrival in Canada". For example, "Before arrival in Canada, how was your quality of sleep **each day**?" and "Since arrival in Canada, how is your quality of sleep **each day**?".

It is worth noting that if one behavior is highly salient, the substantial overstatements will occur if the time period is too short [Bradburn 2004]. Memory about highly salient events is satisfactory for periods of a year or possibly more. Accordingly, the reference period at some of questions in the multicultural questionnaire was defined specifically one year. For example, the reference period in smoking behavior change was defined as "In the last year before arrival in Canada" and "In the past year in Canada".

(3). Specifying response options

The response options of questions in a questionnaire should be specified for avoiding variation in response. For example, the question is: "When did you first move to Ottawa,

Ontario?"; the options are: "(a) In 2003-2005", "(b) When you were 16 years old", "(c) The summer before you started middle school". This kind of variation in response can result in miss of data and measurement error [CDC 2003]. A better question should be: "In what year did you first move to Ottawa?"; the answer options should be: "(a) In 2000-2004", "(b) In 2005-2009", "(c) After 2010".

Hence, the multicultural questionnaire designer specified the options for decreasing biases and measurement errors. For instance, the question in Physical Activity Change section was constructed to: "Since arrival in Canada, on average, how much physical exercise did you do each day?"; the options were designed to: "(A). < 1 hour", "(B). $1 - 2$ hour", "(C). $3 - 4$ hours", "(D). $5 - 6$ hours", "(E). > 6 hours", "(F). Do not know".

3. Designing questions that the respondents can answer

Good questions should be the questions that are feasible to answer for respondents. Mistakes will arise if the respondent (a) simply does not have the information, (b) once had the information but cannot recall it, (c) has the information but cannot recall the time period in which the event occurred, or (d) has related information, but cannot provide it in the form the investigator has asked for [Fowler 1995]. A critical part of questionnaire design is to make sure that each question are applicable to all of the participants and can be answered by them [Williams 2003, CDC 2003]. Hence, the multicultural questionnaire designer constructed as far as possible the questions that the respondents can answer.

(1). Avoiding asking too much and too precise recall topics

The survey researchers should not overtax the respondent's memory and ask for information that the subjects cannot provide, or can provide insufficient quality. Asking too much and too precise recall items can tire respondents and harm the quality of their estimates as they start to answer questions by guessing rather than really thinking about their responses [Ross 1998, Nieuwenhuijsen 2005]. Accordingly, the principal researcher avoided asking questions with too much and too precise recall topics in the multicultural questionnaire, and used general phrasing in the questions rather than asking for many precise counts, so that respondents did not require recalling too related events.

(2). Designing aiding or assisting questions

Questions that require the respondent to do a lot of thinking or working are less likely to be answered than questions that require minimal effort. If the questionnaire needs respondents to recall past events, the question should give them as many aids as possible to achieve accurate recall [Bradburn 2004]. The aiding cues in the question can stimulate the respondent's memory [Malhotra 2006, Patrick 2010]. However, one of the risks of presenting cues is that they may bias responses and make a respondent unduly sensitive to a topic, thus distorting their answers [Malhotra 2006]. A survey researcher should design appropriately the aiding questions and options for reducing response bias.

Hence, the multicultural questionnaire designer provided properly cues or definitions related to the terms or events for assisting recall of the respondents. For example of aiding question, the question in Smoking Change section was constructed to: "In the **last year before arrival** in Canada, on average, how many cigarettes did you smoke each day?". "In the **last year before arrival** in Canada" can aid recall of the respondent. For

instance of aiding option, the question in Physical Activity Change section was designed to: "Before arrival in Canada, which of these descriptions best represents your physical activity level of each day?"; one of the aiding options was designed to: "A. **Very light** (always sitting at work or home during a day, very little walking and housework)".

(3). Avoid using double negatives

Sentence structures in a survey questionnaire that contain double negatives should be avoided because respondents cannot understand clearly meaning of the words [SC 2010]. The respondents have to take longer time to go through a tiring process in order to deduce the meaning of the question and have a greater likelihood to make erroneous choice [Weems 2002, Lietz 2008, Lietz 2010]. For example, "Would you be for or against not allowing the sale of unhealthy food in convenience stores?", and "Would you say that your physical exercise items is not unchanged?". The questions are difficult because each of them contain double negative words: "*against*" and "*not*", "*not*" and "*un-*". For that reason, double negatives were avoided into the questions and the options of this multicultural questionnaire, because the immigrant respondents could not understand equally and correctly the questions and choose effectively suitable answers.

(4). Designing filtering or branching questions

The filtering or branching questions may be used to guide respondents to questions that are applicable to them and to ensure that they do not respond to questions that are not applicable, particularly to direct a subgroup of respondents for obtaining data of the subgroup [Eiselen 2005, William 2006]. Branching questions could obtain more reliable

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data and were quicker to administer than non-branching questions [Krosnick 1993, Lubian 2010]. However, the questions should be kept to a minimum [Kreuter 2011].

On that account, the multicultural questionnaire designer had to ask the respondent one question at the beginning of some of items in order to determine if they are qualified to answer subsequent one. The designer constructed a filtering question at smoking, drinking and dietary change sections for obtaining data of the sub-groups of the lifestyle changes, but the filtering questions did not exclude too many people because sample of the multicultural survey was smaller. Moreover, the questionnaire designer only used two levels (one jump) for any question, and employed an arrow to help direct respondent to the correct subsequent questions. For example, the question in Smoking Change section was constructed to: "1.1.1. Which of the following best describes you?", one of the options was designed to: "D. You smoked both before arrival and since arrival in Canada → go to question 1.1.1.1. and 1.1.1.2. below ↓".

(5). Designing linking or tying questions

Questions should be grouped properly and transitions between questions should be smooth [Frank 2003]. Questionnaires that skip from one unrelated topic to another feel disjointed, need too much effort of respondents, and are less likely to produce reliable responses and high response rates [Bradbrun 2004]. Therefore, the multicultural questionnaire designer kept coherence between sub-sections, items and questions. In particular, behaviour questions were tied with belief questions within a section. For example, physical exercise belief questions linked with physical exercise item questions.

(6). Avoiding complexly computing and inferring questions

Computing and inferring questions can increase response time and difficulty [Nieuwenhuijsen 2005, Patrick 2010]. The respondents who can not calculate and infer give wrong answers to hide their ignorance or do wrong calculation and inference to exhibit their confidence [Salant 1994, Malhotra 2006, Acharya 2010]. Consequently, the complexly computing and inferring questions were not designed to the multicultural lifestyle change questionnaire for reducing respoinse errors.

Usually, a respondent prefers estimation to count for responding the question related to number [Blair 1987]. If the behavior is frequent, irregular, and relatively unimportant, respondents asked about a short time period can simply count and report the number of events retrieved. Respondents asked about a longer time period can typically count for a short time period and then compute an answer based on this rate [Bradbrun 2004]. If the behavior is regular, respondents can have a rate stored in memory and will simply retrieve this rate and apply it to whatever time period is specified [Bradbrun 2004].

Obviously, the immigrant regular lifestyle behaviours could be recalled easily. Some of the questions in the multicultural questionnaire only needed simple estimation or counting at the level of primary school. For example, the question in smoking behavior change was constructed to: "2.1.1.2. In the **past year** in Canada, on average, how much alcohol (beer, wine) did you drink **each day**?". One of the options was designed to: "a. 1/2 bottle of beer or less, or a glass of wine or less".

(7). Designing ranking questions and response alternatives

Ranking a long series of items (i.e. over six options) can be very difficult [Eiselen 2005]. However, it is feasible to rank either the three most or least favored items in opinion and belief questions [Bradbrun 2004, Eiselen 2005]. On that account, the multicultural questionnaire designer appropriately constructed ranking questions and options at some of sections in the questionnaire. For example, the ranking question in physical activity level was constructed to "5.1.2.1. Before arrival in Canada, which of these descriptions best represented your physical activity level of each day?"; the ranking options were designed to: "A. **Very light**", "B. **Light**", "C. **Moderate**", "D. **Moderate heavy**", "E. **Heavy**", "F. Do not know". All of belief change questions were designed to ranking questions. For instance, the ranking question in smoking belief change was constructed to "Before arrival in Canada, which of these statements best describes your belief with regards to smoking cigarettes?"; the ranking options were designed to: "A. Smoking cigarettes is **extremely bad** for health", "B. Smoking cigarettes is **very bad** for health", "C. Smoking cigarettes is **bad** for health", "D. Smoking cigarettes is **somewhat bad** for health", "E. Smoking cigarettes is **less than somewhat bad** for health", "F. Smoking cigarettes is **not bad** for health", "G. Do not know".

(8). Designing clear and logical response categories

Clear and logical options are essential for truthful answer [Malhotra 2006, Fink 2003-7]. Respondents are more likely to choose the first option and select earlier one more frequently than later one in the list [Lietz 2008]. Response categories should start with the least socially desirable option to prevent respondents from making a choice without having read all available options [Bradburn 2004]. Hence, the simple, clear and logical

response categories followed each question in the multicultural questionnaire. The least

socially desirable category was listed at the front of the options. For example, the option -

"You have never smoked cigarettes" was listed as "A" in the options of the question –

"Which of the following best describes you?", as it was least socially desirable.

(9). Using mutually exclusive categories

All of response categories of questions in a questionnaire should be mutually

exclusive. Only one option is applicable to a particular respondent [Ross 1998, Eiselen

2005, Frary 2005, Fink 2003-7, StatPac 2011]. Accordingly, the response categories in

the multicultural questionnaire were designed mutually exclusive. Only one answer was

possible to the respondent in the options. For example, the question in Sleep Change

section was designed to "Before arrival in Canada, on average, how many hours of sleep

did you get each day?"; the mutually exclusive options were constructed to: "A. 6 hours

or less", "B. 7 – 8 hours", "C. 9 hours", "D. 10 hours or more", "E. Do not know".

(10). Designing ratio questions and response alternatives

Ratio questions and response categories could be used in ratio measurement of

variables, in particular, in demographic questions and options that measure usually

income, family size and age [Eiselen 2005]. For that reason, the multicultural

questionnaire designer constructed the ratio questions and options in Demogriphic

Question section for more effective statistical analysis. For example, the ratio question in

Age was "8.4. Which age group do you fit into?"; the ratio options were designed to: "A.

18 – 24 years", "B. 25 – 34 years", "C. 35 – 44 years", "D. 45 – 54 years", "E. 55 – 64 years", "F. 65 – 74 years", "G. 75 – 84 years", "H. 85 years or older".

(11). Designing "don't know" or "would rather not say" options

Investigators should avoid asking respondents for information they do not have. If such questions must be asked, it is acceptable for the respondent not to know [Bradburn 2004]. The choice of "don't know" answer shows that the respondent would be willing to answer the question but is unable to do so due to lack of information. In difficult or sensitive questions, a "don't know" may be a polite refusal to answer [Bradburn 2004]. The availability of this option may increase the accuracy of response, reduce perceived threat and optimize responses to some questions [McColl 2001], as respondents who are not sure of the suitable answer will choose "Don't know" rather than guess [Foddy 1993]. Sometimes, "Don't Know" can really represent some respondents' most honest answers to some of the questions [Schuman 1996, Taylor-Powell 2000b, Schaeffer 2011].

At the same reason, the multicultural questionnaire designer thought that not all respondents should answer every question. If there was any possibility that the respondent could not know answer to the question, a "Do not know" category was involved in the options. If there was any possibility that the respondent refuse to answer the question, a "Would rather not say" category was included to the options.

(12). Designing clear response instruction

A questionnaire should include clear, short, easy-to-find and readable instructions, which can guide correctly the respondent's answer [Malhotra 2006]. The use of boldface

and/or italic can emphasize importance of the response instruction [SC 2010]. In general, some respondents read only what they think are necessary to read. They read the boldface print first, and then decide whether they should read further. Other respondents rarely read the instructions, and proceed directly to the questions. They only refer to the instructions when they think they need help. As a result, the respondents may miss important instructions and definitions. For that reason, the multicultural questionnaire designer constructed the response instructions based on the guidelines: (a) tell the respondent where to find the instructions; (b) ensure that the instructions are short and clear; (c) provide definitions at the beginning of the section or the question; (d) use *boldface, Italic* or *Underline print* to emphasize important words or sentences or marks (i.e. reference, question number, "Skip Pattern", etc); (e) specify "include" or "exclude" in the questions, (f) provide specific instructions in some of the questions [Fink 2003-2, Gower 1993]. Thus, the response instruction with boldface and underline exhibited clearly and succinctly at the front of the first page in the multicultural questionnaire: ''For each question, mark your answer by a dark pencil. Tick only one box in the response boxes for each question unless the instructions in some of the questions tell you to tick all boxes that apply''. Nevertheless, the specific response instructions in the questions of physical activity behavior change and dietary behavior change were designed to "……***Please <u>tick all boxes that apply or write your answer in the space provided</u> in the response box below if applicable***".

4. Designing questions that the respondents are willing to answer

Good questions must be the questions that the respondents are willing to answer [Fowler 1995]. Well-written questions can quickly engage the interest of participants, but bad-written questions can discourage respondents [Bradburn 2004]. Even if respondents are able to answer a particular question, they may be unwilling to do so [Malhotra 2006]. Refusal to answer a question may be due to a variety of circumstances: (a) not interesting, (b) not wanting to be judged negatively, (c) wanting to answer in a way that is consistent with their own self-image, (d) wanting to answer in a way that is consistent with their answers to previous questions [Clark 1992, Aday 1996], or (e) feeling that a true answer could threaten or affect their well-being [Fowler 1995, CDC 2003].

(1). Avoiding poorly worded questions

Respondents will be more willing to answer the well-worded questions [Acharya 2010, SC 2010]. Poorly worded questions can confuse and discourage respondents, decrease response rate, and increase response errors and biases [Malhotra 2006]. Respondents should be addressed friendly in the second person (*you*); basic rules of grammar should be followed. Accordingly, the multicultural questionnaire designer constructed the well-worded questions, so that the respondents could answer them happily and comfortably. For example, each question of belief change was designed to "which of these statements best describes your belief with regards to ……?".

(2). Using parallel structure

Respondents are more willing to answer questions with parallel structure, because maintaining a parallel structure for all or most questions can immensely lower difficulty

of questions, raise respondents' interesting, improve their comprehensibility [Aday 2006, Thayer-Hart 2010]. Hence, the multicultural questionnaire designer constructed lifestyle change questions with parallel structure for facilitating immigrant answer. For instance, the belief change questions with parallel structure at Section 1 and Section 2 in the questionnaire were designed to "Before arrival in Canada, which of these statements best described your belief with regards to smoking cigarettes?" and "Before arrival in Canada, which of these statements best described your belief with regards to drinking alcohol?".

(3). Employing positive and negative statements

The statements of questions measuring attitudes and behaviors can be worded either positively or negatively [Malhotra 2006]. Investigators should establish a permissive attitude by assuring respondents that all responses are acceptable and appropriate [CDC 2003]. Consequently, the multicultural questionnaire designer employed negative statement at the options of the belief change questions in Smoking, Alcohol Consumption and Mood, positive statement at the options of the belief change questions in Sleep and Physical Activity, and positive and negative statement at the options of the belief change questions in Diet. For examples, "A. Smoking cigarettes is **<u>extremely bad</u>** for health" for negative statement; "A. Daily high quality sleep of 7-8 hours **<u>contributes extremely</u>** to health" for positive statement; "A. The above mentioned nutritional foods can **<u>very strongly promote</u>** health" and "A. The above mentioned junk and processed foods have **<u>very strongly adverse effects</u>** on health" for positive and negative statements.

(4). Avoiding too complex, too demanding and time consuming questions

The complex, demanding and time-consuming questions can discourage respondents and lead to their withdrawing from the survey. While most individuals are willing to participate in a survey, this sense of cooperation may vanish if the questions require too much effort to answer [Malhotra 2006]. Accordingly, the multicultural questionnaire designer constructed simple, facile and conversational questions for yielding data of high quality [Patrick 2010]. For example, "Which of the following best describes you?".

(5). Avoiding threatening, discriminating, emotional and embarrassing questions

All of questions in a questionnaire should be non-threatening, non-discriminating, non-emotional and non-embarrassing [Warnecke 1997, Patrick 2010]. When a respondent reads threatening words, there is a possibility that the answer will not be truthful. When a respondent reads discriminating terms, there is other possibility that the answer cannot be completed [StatPac 2011]. The threatening questions (i.e. "Do you know enough about treating patients at risk of stroke?") may discourage the respondents; the discriminating questions (i.e. "Do you think that the racial immigrant group consume the unhealthy food?") may exasperate the respondents [Salant 1994, Bradburn 2004].

Meanwhile, survey researchers should avoid using strong emotional words when formulating a question, as respondents would tend to react to the emotional connotation rather than the issue [Eiselen 2005]. For example, "Under what circumstances would you agree to murder babies by allowing the mother to have an abortion?".

Furthermore, the question should not make the respondent feel embarrassment and guilty. If respondents feel that they are implicating themselves by answering a question, they will tend to lie, response biases can occur. For instance, "How often have you cheated on your tax returns in the past five years?".

Accordingly, the threatening, discriminating, emotional or embarrassing words were avoided to use in questions of the multicultural questionnaire. The words in the questions and response options were chosen and used properly for reducing potential biases.

(6). Avoiding cultural-sensitive and religious-sensitive questions

The sensitive questions that relate to sexual behaviour, illegal activities, mental health, drug use, deviant behaviour or controversial public issues should preferably be avoided as they tend to have a negative impact on response rate, and lead socially acceptable answers rather than truthful answers [Cohen 2011, Eiselen 2005]. Hence, all of words in the questions of this multicultural questionnaire were neutral and mild, non-cultural-sensitive and non-religious-sensitive. All of questions could be interpreted and responded by immigrants of the language sub-groups in the same way [BRUW 2011].

(7). Avoiding questions leading to prestige bias

It has been known that if a particular opinion or behavoir is linked to a person or organization with high status in a region or nation, it influences the respondent's reply and can lead to prestige bias of response [Eiselen 2005]. If the respondents respect the high-status person or organization, they will tend to assume that he/she or it must be right and will reply accordingly. For examples, "The national president believes that HIV does not cause AIDS, do you agree?"; "Do you think that the physical exercise item which WHO recommends is suitable for you?". Hence, the multicultural questionnaire designer avoided using name or term (i.e. president, primary minister, expert or scientist, WHO,

Health Canada, etc) of prestigious persons or organizations in the questions for reduring prestige response biases. All of words in the questions were neural and objective.

(8). Reducing social desirability (SD)

Social desirability refers to a tendency to respond in a manner that makes the respondent look good rather than to respond in an accurate and truthful manner [Holtgraves 2004]. Socially desirable responses can lead to answer that inaccurately reflect respondents' actual behaviours in a number of ways [Bradbrun 2004]. Firstly, respondents might choose to select a certain position that is thought to be one that is favoured by society (i.e. not to smoke or use drug) [Brace 2004]. Secondly, because of the social prestige, respondents think that they should be informed about certain issues and give responses conveying this impression instead of admitting ignorance. Thirdly, because of fear of being identified or revealing details about the private sphere or the facts that are considered embarrassing, some of the respondents can give socially desirable responses rather than their truthful responses [Oppenheim 1992, Oksenberg 1977, Foddy 1993]. On that account, the multicultural questionnaire designer used proper words and gave appropriate proposition in some of the questions and options for reducing social desirability and response biases, such as "which of these descriptions best represented your physical activity level of each day?", and "nutritional" or "junk and processed" food instead of "healthy" or "unhealthy" food in the dietary questions.

(9). Softening personal sensitive questions

The respondents may be embarrassed to answer sensitive questions (i.e. income, family life, political and religious beliefs, involvement in accidents or crimes and etc) because the accurate responses may affect their prestige or self-image [Malhotra 2006]. Respondents tend to choose the response that is most favourable to their self-esteem, or that accords with social norms, rather than reveal real behaviors or beliefs [SC 2010].

It has been known that there are several techniques for asking a sensitive question in a less threatening way [SC 2010]. One approach is to introduce the question by suggesting that the sensitive behaviour is not uncommon for *many* or *most people* ("many" or "most" technique). Another technique is to use warm-up questions ("warm-up" technique) to lead into the sensitive question with less sensitive questions. A third technique is to use a closed question with a range of response categories ("response category" technique) [Taylor-Powell 1998, Fink 2003-3, Rattray 2007, SC 2010].

Consequently, the "warm-up" and "response category" techniques softening the sensitive questions were used at the demographic questions, and such questions were placed at the end of the multicultural questionnaire for increasing the likelihood of obtaining sensitive information. For example, the sensitive option ("D. Refugee") at the question ("What is your category of immigration?") was replaced with neutral option ("D. Other") for softening the category question. For other example, "Which age group do you fit into?" superseded "how old are you" for softening question of age.

4.2.8.2. Type of questions

Survey researchers should be clear in their own minds what information they require should be gained in what way [Taylor-Powell 2000b]. Therefore, The multicultural questionnaire designer contemplated optimal type of questions obtaining information.

1. Depending on structure of questions

The structure of questions should be considered firstly when designing the questions. Usually, questions are distinguished to *unstructured* questions and *structured* questions. Unstructured questions are open-ended questions that respondents answer in their own words and their answers can have one or more [Malhotra 2006]. The unstructured questions are usually used to collect qualitative or descriptive data, but they are difficult to be analysed [Taylor-Powell 2000b, Barnes 2001]. Structured questions are closed-ended questions that specify the set of responses and give a list of predetermined responses [Malhotra 2006]. The structured questions are often used to collect quantifiable or numeric data, but they are difficult to construct [Taylor-Powell 2000b, Hannan 2007]. A closed question may include appropriately an unstructured category for "Other" or an option for "Don't Know" [Taylor-Powell 2000b]. However, when large numbers of respondents choose the "Other" or "Don't Know" category, it indicates that the alternative list can be seriously flawed and introduce bias. The designer should revise punctually the question, the options and the alternative list [Malhotra 2006]. Accordingly, almost all questions in the multicultural questionnaire were designed to structured questions. However, some questions were constructed to unstructured questions.

2. Depending on way of questions

Appropriate questions should be asked in proper ways [Bradburn 2004, de Vaus 2002]. According to way of questions, the types of question include Attitude Question, Behavior Question, Belief Question, Attribute Question [Fink 2003, Schneider 2003].

(1). Attitude questions

Attitudes are subjective opinions that identify what people want [Glasow 2005]. Attitude questions try to assess how respondents feel about something, generally require respondents to show whether they have positive or negative feelings about the attitude object, such as they favor or oppose, prefer or not prefer, agree or disagree. The use of a neutral is optional in the options [Bradbrun 2004].

(2). Behavior questions

Behaviors are objective facts of what people do [Glasow 2005]. Behavior questions are the questions that ask about behavior or "facts", such as characteristics of people, things people have done, or things that have happened to people that are in principle verifiable by an external observer [Bradbrun 2004]. It has been known that the behavior questions are related to the belief questions [Barnes 2001].

(3). Belief questions

Beliefs are subjective opinions that indicate what people think [Glasow 2005]. The belief questions are designed to elicit people's perceptions of past or present or future reality [Barnes 2001]. Apparently, beliefs are different from attitudes and reflect what an individual believes [Barnes 2001].

(4). Attribute questions

Attributes are objective facts that describe what people are [Glasow 2005]. Attribute questions elicit personal or demographic characteristics, such as age, income. The usual purpose of this type of question is to explore how other kinds of information vary for people with differing attributes [Taylor-Powell 2000b].

A respondent's beliefs, attitudes and behaviors are imprecise and apt to change over time. Attributes can also change, but over longer periods [Glasow 2005]. Consequently, the questions in this multicultural lifestyle change questionnaire were designed to three types: (a) behaviour questions - lifestyle behavior change questions, (b) belief questions - lifestyle belief change questions, and (c) attribute questions - demographic questions.

3. Depending on research purpose

According to research purpose, survey questions can be differentiated usually to descriptive questions, relational questions and causal questions [Trochim 2006b].

(1). Descriptive questions

Descriptive questions are designed primarily to describe what is going on or what exists. For instance, if researchers want to know what percent of the population would support the federal health plan, they should design simply questions describing the plan.

(2). Relational questions

Relational questions are designed to look at the relationships between two or more variables or between several phenomena [William 2006, Stufflelebeam 2014, Tully 2014]. For example, a public health survey that compares what proportion of men and

women would purchase healthy food or unhealthy food is essential for studying the relationship between gender and dietary preference. Relational questions determine relationships between variables instead of causes and affections between variables, which are quite different with causal questions in survey research [William 2006]. A relational question is more typically one about the direction and degree of covariance [Kline 2009]. Generally, relational questions could be asked within qualitative research [Tully 2014].

(3). Causal questions

Causal questions are designed to determine whether one or more variables affects one or more outcome variables or to look at cause-and-effect relationship between variables [William 2006, Stufflelebeam 2014, Tully 2014]. For instance, if the public health researchers intend to determine whether a recent health promoting education campaign changed health dietary preferences, they would essentially study whether the campaign changed the proportion of population who would purchase healthy or unhealthy food. Causal questions determine causes and influences between variables rather than relationships between variables, which are quite different with relational questions in survey research [William 2006]. A causal question concerns how one or independent (cause) variables affects one or more dependent (outcome) variables [Kline 2009]. Usually, causal questions could be asked within quantative research [Tully 2014].

Accordingly, the descriptive and causal questions were included in the multicultural lifestyle change questionnaire, as the questions were designed to look at the lifestyle changes of the immigrant sub-groups and to determine affections of demographic independent (cause) variables on lifestyle dependent (outcome) variables or to look at

causes of the lifestyle changes. However, the multicultural research did not focus on determining relationships between variables. Therefore, the relational questions were not encompassed in the questionnaire because of its unsuitability.

4. Depending on response form

According to response form, the types of question contain "Yes/No answers", "Tick boxes", "Numbered responses" and "Word responses" questions [Taylor-Powell 2000b, de Vaus 2002]. "Tick boxes" type was used in designing the response categories of almost all questions in the multicultural questionnaire, because it was the easiest response type. "Word responses" type was applied in certain response category in some questions.

4.2.8.3. Format of questions

A questionnaire should be formatted so as to be as easy to follow as possible, because not all respondents are motivated to take additional time and/or their reading skills may not be strong [CDC 2003]. Careful formatting for questions can enhance data quality and reduce error [Fowler 1995, Armstrong 2000, Bowling 2002]. Broadly speaking, survey questions can be formatted in two ways: *Open-ended format question*: the questions that will accept any information provided by the respondents, and *closed-ended format question*: the questions that restrict the respondents to choosing between pre-specified responses [CDC 2003, Jenn 2006]. Each format of question has strengths and limitations, and is useful in some situations. No one format is clearly better than others in all situations. The choice of format is largely determined by the purpose of question and the type of information, to some extent, by the taste of the researcher [CDC 2003, Bradburn

2004]. It is worth noting that the format of question should be varied to prevent participants producing repetitive answers as their attention wanes [Taylor-Powell 2000b]. Hence, each question in the multicultural questionnaire was formatted appropriately.

1. Closed-ended format

The closed-ended format questions are followed by the pre-coded two or multiple response options. The main advantages of the questions include: (a) the respondent is restricted to a finite and more manageable set of responses, and the answer may differ depending on the number of categories; (b) they are easy and quick to answer; (c) they make response task more passive; (d) they have categories that are quicker and cheaper to code and to analyze; (e) they permit the inclusion of more variables; (f) they appear to guarantee comparability of responses across individuals [Ross 1998, Nieuwenhuijsen 2005], (g) they may reduce the threat of reporting [Bradbrun 2004]. However, the principal disadvantages of the questions contain: (a) they can introduce biases; (b) they do not allow for creativity or for the respondent to develop ideas; (c) they do not permit the respondent to qualify the chosen response or express a more complex or subtle meaning; (d) they require specific skill to write [CDC 2003, White 2008].

Generally, the closed-ended format include mainly closed-ended format with one choice answer, closed-ended format with multiple choice answers and partially close-ended format [Malhotra 2006, Marshall 2009]. Consequently, the above three closed-ended formats of questions were contained in the multicultural survey instrument.

(1). Closed-ended format with multiple choice (one best answer / single-option)

Close-ended format with multiple choice gives respondents a list of answers and asks them to circle the choice that they feel is the best [Marshall 2009]. The format is the most popular format of survey questions and can increase response correct rate, minimize response bias, and ease scaling and statistical analyses of data [Fink 2003-7, Fink 2003-8, StatPac 2011]. Hence, the questions to depict the particular behaviours and beliefs, health status, and demographic characteristics were designed to the single-option format and their options were listed sequentially at one column in the multicultural questionnaire. The format includes the sub-formats: Two option response, One best answer, Rating scale, Ordered choice, Unordered choice, Items in a series, Paired comparisons, and Matching [Marshall 2009]. "Rating scale", "Ordered choice" and "Unordered choice" sub-formats were only used in the multicultural questionnaire.

(I). Rating scale sub-format

In the rating scale sub-format, an itemized rating scale asks subjects to choose one from several arranged response categories in hierarchical order, which may be applied in assessing dimensions of behavior or attitude [Friedman 1999, Taylor-Powell 2000b]. The sub-format was used in the options of questions at mood, sleep quality and health status changes in the multicultural questionnaire. For instance, the options in the mood change question - "3.1.1. Before arrival in Canada, how would you describe your mood?" were designed to "A. Very relaxed", "B. Relaxed", "C. Somewhat relaxed", "D. Neutral (neither relaxed nor anxious)", "E. Somewhat anxious", "F. Anxious", "G. Very anxious", "H. Do not know".

(II). Ordered choice sub-format

The closed-ended questions with ordered choice sub-format require the respondent to examine each possible response independent of the other choices. The choices form a continuum of responses, such as those provided by Likert scales and numerical ranges [Glasow 2005]. The sub-format was applied in most of the questions in the multicultural lifestyle change questionnaire.

(III). Unordered choice sub-format

The closed-ended questions with unordered choice sub-format ask the respondent to compare possible responses and select one. The sub-format is useful for ranking items in order of preference [Glasow 2005]. The unordered choice format was only used at some of the behavior questions in sections of Smoking Change, Alcohol Consumption Change and Dietary Change in the multicultural questionnaire.

(2). Closed-ended format with checklist (one or more answers)

Closed-ended format with checklist (one or more answers) asks respondents to select one or more of the options given [Fink 2003-7, Marshall 2009]. Two concerns for the format are (a) the number of options that should be included and (b) order or position bias [Malhotra 2006]. The multiple choice questions should include choices that cover the full range of possible options and the options should be mutually exclusive and collectively exhaustive. An "other" category should be included where appropriate. The instructions should clearly indicate the respondent is to select all that apply [Malhotra 2006].

Consequently, in the multicultural questionnaire, the questions in physical exercise items, increasing or decreasing consumption of nutritional foods and junk and processed foods were designed to the close-ended format with checklist in the options, as the answers for the question could reveal completely patterns of physical exercise items before arrival and since arrival in Canada, and patterns of increasing or decreasing consumption of the foods after arrival in Canada, so that the disparities of the sub-groups in physical exercise change and dietary behavior change can be compared and analyzed easily and accurately. The order and length of the options at each close-ended format question were arranged properly for decreasing order bias. Close-ended format with multiple choice answers includes the sub-formats: "Check All That Apply", Listing and Ranking sub-formats [Fanning 2005, Marshall 2009]. The "Check All That Apply" sub-format is one response format to obtain information fast and completely and to save space [Taylor-Powell 2000b], and was only used in the questions at physical exercise items change and dietary behavior change in the multicultural questionnaire.

(3). Partially closed-ended format

The question with partially closed-ended format is actually a combination of open and closed question. The combination is often more effective since it permits a choice to be made of the consistency of the responses [Ross 1998]. The question offers respondents a choice of answers plus an open-ended option such as "Other (Please specify)" in the options [Salant 1994, Glasow 2005, Marshall 2009]. The format allows respondents to answer in their own words, protects the respondent against leaving out an important answer choice and provides answers that cover all possibilities [Bradbrun 2004]. For that

reason, "Other (Please specify) " was employed in questions of physical exercise items and demographic questions in the multicultural questionnaire.

2. Open-ended format

Open-ended/free-response format questions are not followed by any options. Answers are recorded in full or precise information is filled in the blank, either by the interviewer or the respondent [CDC 2003, Marshall 2009]. The main advantages of the questions include: (a) they allow respondents to express their ideas spontaneously in their own language without being influenced by the options of a closed-ended question; (b) they are less likely to suggest or guide the answer than closed questions; (c) they can add new information when there is very little existing information available about a topic; (d) they are generally better than closed questions for obtaining information on the frequencies of socially undesirable behaviour; (e) they can uncover uncommon but intelligent opinions or behaviours of which the surveyor would have remained unaware; (f) they can produce vignettes of considerable richness and quotable material [Bradbrun 2004, SC 2010].

However, the main disadvantages of the questions contain: (a) they may be difficult to answer and even more difficult to code and to analyze; (b) they require effort and time on behalf of the respondent; (c) coding free-response material is not only time-consuming and costly but it also introduces a degree of coding error; (d) they require to develop a coding system; (d) they require the respondent to have some degree of speaking and/or writing abilities; (e) the respondent's expression can be unclear or hard to understand, and/or his/her handwriting can be illegible [CDC 2003, Bradburn 2004, SC 2010]. Some of demographic questions are well-suited to the open format [White 2008].

On the one hand, open-ended questions following closed-ended questions are useful for precisely probing the information in diseases and public health [Bowling 2009]. When precision for a question is a concern, the multicultural researcher used fill-in-the-blank question - open-ended question. For example, the open-ended format was used at some demographic question in the multicultural questionnaire for probing demographic information of respondents, such as "What is your country of origin? _____." On the other hand, closed-ended questions following open-ended questions are of value on topics about which little is known and where people are likely to be influenced by social desirability bias [Bowling 2009]. For instance, the order that the closed-ended question ("8.4. Which age group do you fit into?") follows the open-ended question ("8.3. What is your country of origin?") in the multicultural questionnaire was more effective for obtaining individual sensitive information of the respondents.

4.2.8.4. Design of response categories

The construction of response options can impact response rate and biases [Bradbrun 2004]. The categories should be able to encourage respondents to consider each possible response to avoid the uncertainty [CDC 2003]. The related factors should be considered.

1. Number of response categories

The number of response categories may vary in diverse questions. Some survey researcher indicates that each question should ideally offer five to seven or eight options [Glasow 2005]. However, other researcher suggests that the options should be limited to less than five categories [Salant 1994]. Psychometric research has shown that most subjects could not reliably distinguish more than seven or eight options [Bradbrun 2004].

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On that account, the multicultural questionnaire designer constructed appropriately the categories according to response burden which respondents can bear. The categories of all single-option-questions of behavior change in the questionnaire were designed to 3 to 8 options, because more than seven or eight options can yield unreliable responses [Eiselen 2005]. Yet, the categories of all multi-option-questions in physical exercise item change, consumption change of nutritional foods and junk and processed foods were designed respectively to 18, 14 and 21 options, as the multicultural researcher needs to learn more information related to physical exercise and dietary changes. The categories of all single-option-questions of belief change were limited to less than 8 options, as 6 to 7 options may be quite sufficient for the belief questions. The categories of demographic questions were designed 2 to 8 options according to the necessity of data analysis.

2. Odd or even number of response categories

The decision to use an odd or an even number of categories is often related to include a neutral category. Not including a neutral option may mean to force the respondents to take a stance on an issue. However, a neutral option may lead to some respondents choosing the neutral option even if it is not suitable for them [Neuman 2010].

Consequently, the options of odd or even number and the neutral category were constructed properly in the multicultural questionnaire. For example, the question in mood status change was designed to "Before arrival in Canada, how mood status had you?"; the options of even number with a neutral category were constructed to "A. Very relaxed", "B. Relaxed." "C. Somewhat relaxed", D. Neutral (neither relaxed nor anxious)", "E. Somewhat anxious", "F. Anxious", "G. Very anxious", "H. Do not know".

The question in mood belief change was designed to "Before arrival in Canada, which of these statements best described your belief with regards to anxiety?"; the options of odd number were constructed to "A. Anxiety affects health **extremely negatively**", "B. Anxiety affects health **very negatively**", "C. Anxiety affects health **negatively**", "D. Anxiety affects health **somewhat negatively**", "E. Anxiety affects health **very somewhat negatively**", "F. Anxiety does **not** affect health **negatively**", "G. Do not know".

3. Scale format of response categories

For close-ended questions, the options can be categorized into three groups: (1) *nominal scale response alternatives*, which are just labelled responses without ordering or assigning any quantitative value to them (i.e. sex); (2) *ordinal scale response alternatives*, which can be ordered but no quantitative value can be assigned to them; *interval scale response alternatives*, which can be labelled, ordered and have standard units of measurement assigned to them [Rea 2005, Tolonen 2005]. Consequently, the response options of some questions in the multicultural questionnaire were arranged as nominal scale format, such as part of questions in smoking and drinking behavior changes, physical exercise item change, consumption changes of nutritional foods and junk and processed foods, and demography. The options in other questions were designed as ordinal scale format, such as the questions in belief changes, mood status change, sleep quality change, physical activity level change, health status change, and part of demographic questions. The options at certain questions were constructed as interval scale format, such as the questions in smoking and alcohol consumption quantity, sleep time change, physical activity time change, and some demographic questions.

4. Scale order of response categories

Scale order may start with the lowest (or worst) category and proceed to the highest (or best) category or vice versa. A good general rule to follow is to start with the end of the scale that is the least desirable. However, if the more or most desirable category come first, the respondent might choose the category without waiting to read the entire set of response categories [Bradbrun 2004]. For that reason, the scale order of the options in the multicultural questionnaire was listed properly from top (highest or best) to bottom (lowest or worst). For instance, the options of the question – "Before arrival in Canada, how did you estimate your overall health status?" in Health Status Change section were designed to: "A. Excellent", "B. Very good", "C. Good", "D. Fair", "E. Poor", "F. Very poor", "G. Extremely poor", "H. Do not know".

5. Format of response categories

Each option should begin with a letter (a-d or A-D) followed by a period "**.**". The options with choice boxes should be listed vertically (in column) rather than horizontally (in row) in alphabet order (i.e. A, B, C, D or a, b, c, d) for strengthening clarification and facilitating response choice [de Vaus 2002, Fink 2003-8, Acharya 2010]. Accordingly, the options for each question in the multicultural questionnaire were listed in column.

It has been known that the alternative format effects included primacy effect (selecting earlier options more frequently), recency effect (selecting the later options more frequently) and effect of shifting frames of reference (selecting certain options depends on whether the "more favourable" options are presented earlier or later) [Foddy

1993, Rammstedt 2007]. Hence, the multicultural questionnaire designer considered fully the alternative format effects and formatted properly the categories of each question.

4.2.8.5. Length of questions

Length of questions in a questionnaire can affect response rate, choice and bias [Lietz 2010]. Some of survey researchers indicate that the questions should keep as short as possible because response reliability declines as the length of the question increases [Foddy 1993, Fink 2003, Dillman 2007]. However, the practice that is mainly based on research on attitude questions cannot apply to behavior questions [Bradbrun 2004].

For the behavior topics, longer questions can add memory cues, aid recall, and obtain accurate information on frequencies of socially undesirable behavior [Oksenberg 1977, Bradbrun 2004]. Nevertheless, longer questions may increase the telescoping bias. Long questions are useful for behavior that may be socially undesirable but may lead to an overreporting of socially desirable behaviour [Bradburn 2004].

For English language, some of researchers specify 16-20 words [Brislin 1986, Jabine 1987], but others suggest 20-30 words per sentence [Blair 1977, Oppenheim 1992]. Meanwhile, some researcher recommends that the questions should be formed of 16 to 64 words, generally, 25 words or less [Andrews 1984]. If a longer sentence is used, it should be broken up to several shorter sentences [Ross 1998].

Meanwhile, grammatical complexity in the questions should be maintained to a minimun [Brislin 1986, Dillman 2000]. Moreover, the questions should employ the active voice rather than the passive voice, repeat nouns instead of using pronouns and avoid possessive forms for minimizing the cognitive demands on respondents [Lietz 2008].

Consequently, all of questions in the multicultural questionnaire were constructed an appropriate (median) length - to maintain 5 – 20 words except explanation in the brackets for reducing effectively answer load of the respondents. The explanation in each of the brackets was limited within 12 words. Every question was designed to a maximum of 25 words. Grammar of the sentences in all of questions was kept as simple as possible.

4.2.8.6. Number of questions

Number of the questions in a questionnaire depends on the general level of respondent information on the topic [Bradbrun2004]. If respondent information is little, simple or most respondents know nothing or very little about an issue, it will only take one or two questions to determine that. If there is great variability in the amount or the complication of information, it is possible to take more questions [Bradbrun 2004]. Therefore, in the multicultural questionnaire, the questions in each section were kept a minimum. Each topic in Demographic Question section contained one question. Health Status Change section embraced two questions. Each of Smoking Change section and Alcohol Consumption Change section included five questions. Mood Change section comprised four questions. Sleep Change section encompassed six questions. Physical Activity Change section included eight questions. Dietary Change section contained ten questions.

4.2.8.7. Sequence of questions

A respondent's answer to questions is influenced by sequence of questions or "order effect"in the questionnaire [Wanke 1997, McColl 2001], which is caused partly by the natural tendency of respondents [Sudman 1996, CDC 2003]. Because questions are asked

sequentially, answers to questions trigger thoughts in respondents' minds that may spill over and influence the answers to later questions [Bradbrum 2004]. It is worth noting that inappropriate question order may threaten not only the validity of the results but also the generalisability of results to the population [Tanur 1992, Rea 2005, Lietz 2010]. On the contrary, the appropriate sequence of question can build up close rapport that makes the respondent more likely answer these questions [Tolonen 2005, Malhotra 2006]. There are two key considerations for order. Firstly, questions should be ordered so as to minimize the effect of respondents' answers on subsequent questions. Secondly, questions should be ordered in a way that motivates respondents to complete the questionnaire [Bradbrun 2004]. The first few questions are very important for a successful questionnaire. If the first few questions are too threatening or "boring", there is little chance that the person will complete the questionnaire [Bradbrun 2004]. On that account, the questions in the multicultural lifestyle change questionnaire were arranged in appropriate and logical order and organized around topic areas and numbered consecutively throughout the entire questionnaire [SC 2010, Koponen 2011].

1. Simple questions to complex questions

The first question should be short and simple, more complex issues can come later in each item of a questionnaire [Taylor-Powell 1998, Malhotra 2006]. According to the rule, the simplest questions in physical activity time change were placed at the front of Physical Activity Change section in the multicultural questionnaire, followed by more complex questions in physical activity level change, the most complex questions in physical exercise item change were listed at the end of the section.

2. Easy questions to difficult questions

According to the principle of ''Easy-To-Difficult Progression''[Taylor-Powell 1998], Smoking Change section that included easier and more popular questions was listed at the front in the multicultural questionnaire; then, Alcohol Consumption, Mood and Sleep Change sections were listed sequentially. Physical Activity and Dietary Change sections that contained more difficult questions were listed later. However, Health Status Change section was listed after Dietary Change section for avoiding answer of impacting lifestyle questions. The easier questions were listed at the front in each section in the questionnaire; more difficult and time-consuming questions were placed later.

3. General questions to specific questions

Specific question should be placed after general question as it can influence response of general question [Bates 2006, Bowling 2009]. Question order effects can arise when answering behaviour change questions [Schuman 1996, Baker 2003]. The order effects include: (1) effects of *part-whole combinations* (where one question is more general with respect to a certain concept while the other is more specific, respondents adapt more general answers), *part-part combinations* (where questions are asked at the same level of specificity, respondents adapt their answers as a result of normative consistency) and *salience* (where questions are asked at the same level of generalization or specificity, respondents adapt their answers as a result of importance) [Bartels 2002, Lietz 2010].

Accordingly, the multicultural questionnaire designer considered fully the effects of part-whole combinations, and listed a general question of the behaviour at front of the

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specific questions in the sections. For example, "Which of the following best describes you?" (general question) was listed at the front of Smoking Change section, then, "In a year before arrival in Canada, on average, how many cigarettes did you smoke each day?" (specific question) followed it. Meanwhile, the designer considered the effects of part-part combinations, and listed a more preferable specific question for the respondents at front of other more complex specific question. For instance, the physical activity level change questions were listed at front of the physical exercise item change questions in Physical Activity Change section. Further, the designer considered the effects of salience and listed a more salient question at front of other less salient question. For example, the questions of consumption change of nutritional foods were listed at front of the questions of consumption change of junk and processed foods for decreasing response bias.

4. Single-option questions to multi-option questions

The single-option question should be listed at front of the multi-option question, because the multi-option question was usually more difficult and more complex [de Vaus 2002, Malhotra 2006]. Based on the rule, the single-option questions at physical activity level change were placed at front of the multi-option questions at physical activity item change in Physical Activity Change section of the multicultural questionnaire.

5. Unaided questions to aided questions

The questions in a questionnaire should flow from unaided to aided questions [Fink 2003]. According to the rule, the unaided question in the multicultural questionnaire, "Which of the following best describes you?" was listed at the front of Smoking Change

section. The aided questions - "In the **last year** before arrival in Canada, on average, how many cigarettes did you smoke each day?" and "In the **past year** in Canada, on average, how many cigarettes did you smoke each day?" followed the unaided question.

6. Behavior questions to belief questions

The questions in a questionnaire should flow smoothly from factual and behavioural questions to opinion and belief questions [Fink 2003, Bowling 2009]. Based on the principale, the behavior change questions in the multicultural questionnaire were listed at the front of each section, followed by the related belief change questions. The respondents tended to think more when asked the earlier behavior questions and so gave more accurate answers to belief questions related to the behavior questions.

7. Basic questions to classification questions

According to types of information, questions in a questionnaire include: (a) basic questions, (b) classification questions, (c) identification questions. Basic questions relate directly to the research objectives [Malhotra 2006]. Classification questions consist of socioeconomic and demographic characteristics, which are used to classify the respondents in order to analyze results across different groups. Identification questions contain name, address and telephone number of the participants. The basic question in a questionnaire should flow smoothly to the classification question [Fink 2003]. The questions that are related to personal information and could be perceived difficultly should be placed later after a relationship of the surveyor and the respondent has been established [Rattray 2007, SC 2010]. Therefore, the *basic questions* of lifestyle changes

were placed at the front in the multicultural questionnaire. The demographic

classification questions came at the end of the questionnaire in order to reduce negative

feelings about the provision of personal information [Converse 1986, Oppenhein 1992].

8. Questions of less cultural content to questions of more cultural content

The questions of less cultural content in a questionnaire should be listed at front of the

questions of more cultural content [Harkness 2003, Harkness 2010]. Therefore, Smoking

and Alcohol Consumption Change sections that contained the least cultural content were

listed at the front in the multicultural questionnaire, followed by Mood and Sleep Change

sections that comprised less cultural content. Physical Activity and Dietary Change

sections that embraced more cultural content were listed at the back of the questionnaire,

as cultural characters may affect more deeply physical exercise and dietary preferences

[Newell 2009, Lim 2009]. In particular, diet and food consumption appear to be

powerfully influenced by culture [Rozin 1984, Green 2010]. Hence, the Dietary Change

section was listed at rear of the Physical Activity Change section.

9. Least sensitive questions to most sensitive questions

The questions in a questionnaire should flow from the least sensitive to the most

sensitive [Fink 2003]. According to the rule, the least sensitive question - "What is your

mother tongue in original nations?" was listed at the front of Demographic Question

section in the multicultural questionnaire, followed by age, gender and marital status

questions. Religion question was sensitive and disposed at the rear of the section. The last

one was typically the most sensitive income question. Even if the respondent quitted at that point anyway, at least they have answered most of questions in the questionnaire.

4.2.9. Layout or format of questionnaire

Layout of the questionnaire is as important as the questions [Sanchez 1992, Hartley 1994, Dillman 2007]. The general rule is that the questionnaire should be easy to read and look professionally designed [Taylor-Powell 2000a, Taylor-Powell 2000b, SC 2010]. All self-administered questionnaires should be printed on paper of sufficient quality that the print or writing on the reverse side cannot be seen. Forms that are blurred or blemished in any way are difficult to read, but the ink that is too light should not be used [Bradbrun 2004]. The most common questionnaire format should be similar to that of a conventional and vertical book or booklet or newspaper [Tolonen 2005].

Consequently, the multicultural questionnaire designer formulated the questionnaire appropriately according to the guidelines for the layout of a good questionnaire: (a) the questionnaire should appear interesting and easy to complete; (b) the questionnaire should be respondent-friendly; (c) the cover page should create a positive first impression; (d) the questionnaire should appear professional and public health survey-like; (e) the questionnaire should have a title for each section; (f) the instructions and answer spaces should facilitate answering of the questions; (g) the illustrations and symbols (i.e. arrows and circles) should be used to attract attention and guide respondents; (h) the pictures should be attractive and significant; (i) the last page of the questionnaire should provide space for additional comments by respondents; (k) the questionnaire should include an expression of appreciation [Gower 1993].

4.2.9.1. Format of typeface

There are many considerations when organizing the printed questions on paper. Consistency of typeface and font should be maintained for questions, instructions, headings and transitional statements. The use of different typeface and font for questions and instructions allows the respondent to easily identify the questions [Bradbrun 2004].

It is essential that the type should be sufficiently large and clear for rapid reading for all potential respondents [Bradbrun 2004]. The type size 12 pt should be sufficient for usual readers or working-age adults; the type size should be increased to 14 pt or 16 pt for the visually impaired ones or older people (60 years +) [Hartley 1994, Rea 2005, Dillman 2007]. Bold, italic and underlining types, and capital letters can be used to lay stress on the words and to increase readability [Hartley 1994, Tolonen 2005].

On that account, the type size of the multicultural lifestyle change questionnaire was designed to 12 pt (Time New Roman) for the usual participants and 14 pt for the visually impaired ones [Dillman 2007]. Bold type was applied in title of each section and sub-section, and the response boxes and Arabic numerals before each option. Bold, italic and underlining types, and capital letters were used properly in some of words or sentences in questions, response options and response instruction for the emphasis of importance.

4.2.9.2. Format of line space

The space between lines and paragraphs should be big enough, so that the lines and the paragraphs are easy to follow. The recommended space is +1 pt - +2 pt at least between lines for the type size 12 pt to 16 pt [Tolonen 2005]. Ideally, the lines are

maximally 50-65 characters long and the words are not split between the lines (i.e. no hyphenation) [Hartley 1994, Dillman 2007]. The space between the paragraphs should be clearly larger than the space between the lines. [Tolonen 2005, Dillman 2007].

Hence, the space between lines was designed to +1 pt for the type size 12 pt and +2 pt for the type size 14 pt in the multicultural questionnaire. Double spacing was used between two sections. Single spacing was used between two questions and between the options of the two questions. No spacing was used between the question and its options, and between two options for maintaining coherence. Each question and its options kept consistency in the same page as far as possible to ensure readability of the text [de Vaus 2002, Fink 2003-3, Fanning 2005]. Sufficient blank in two sides of the question and its options was left for more comfortable response. The physical layout of the questionnaire was formatted to be attractive, neat, balanced on page, easy to follow [Fink 2003-3].

4.2.9.3. Layout of text space

The space between the columns in the text should be generous [Tolonen 2005, Dillman 2007]. Visual aids (i.e. pictures and arrows) should be clear and located so that there is no place for confusion. Questions should be placed coherently as far as possible [Rea 2005]. Options should be listed vertically not horizontally [Dillman 2007]. Consequently, all of the questions and options in the multicultural questionnaire were listed on one facing page, and single column or a series of parallel columns below each question. The sufficient blank space was provided on the open-ended questions.

4.2.9.4. Format of color and pictures

The colour of questionnaire print may affect readability of the text. Generally, the bigger is the contrast between background and text, the easier is it to read. It has been known that the best combination is to use white paper and black text [Bradbrun 2004]. Moreover, the paper should be uncoated and dense enough for avoiding the glare of the paper and the gleam of printed text through the page [Tolonen 2005]. For that reason, the colour of the multicultural questionnaire was designed to high contrast color (black words on white background). The appropriate pictures were constructed in cover and back pages for increasing attraction, interest and pleasure. However, the pictures were not formatted in content pages or did not follow questions for avoiding diverting attention of the respondent and interfering with the options.

4.2.9.5. Format of titles and headings

Titles and headings should be usually in a larger font than the questions and options. Hence, a title was arranged at the front of each section in the multicultural lifestyle change questionnaire for clear understanding. For example, Section 1: Smoking Change.

4.2.9.6. Numbering of questions

The questions in a paper questionnaire should be numbered for being reading easily. Firstly, numbering questions can alert either the respondent that a question has been skipped. Secondly, a small number of questions can suggest to the respondents that the task is not too difficult and will not take too much of their time. Finally, the follow-up debriefings indicate that some people find satisfaction in seeing they have answered a certain number of questions and are progressing through the questionnaire at a

satisfactory rate. Obviously, the numbered questions can serve as important reference points in communications between the researcher and data processing personnel. Main questions are usually numbered consecutively with standard Arabic numerals from 1 to *n.* Subparts of questions usually follow some sort of outlining procedure. The response options of the questions are usually identified by *A, B, C* (or by *a, b, c*). To further identify questions as subparts, they are usually indented. Subparts of subparts are usually identified by numbers placed in parentheses [(1), (2), (3)] and are further indented [Bradbrun 2004]. Hence, each question in the multicultural questionnaire begins with a question number, followed by either a period ".". For example, "1.1." or "1.1.1." or "1.1.1.1.". The question wording follows the question number and the period. One space was placed before the question wording. For instance, "1.1.1. Which of the following best describes you?", the options of each question were listed by *A, B, C, D* (or by *a, b, c, d*).

4.2.9.7. Format of cover and back pages

A carefully constructed statement should include in the cover page and the back page in the self-administered questionnaire for friendly communicating to the respondent [Wright 1995]. Evidence shows that when the respondents understand why the information they can provide is important, they are more motivated to participate and can work harder to provide complete and accurate data [Eiselen 2005, CDC 2003].

It is obvious that a front cover is extremely important in a questionnaire since the decision to read the questionnaire is made based on the page and general appearance of the questionnaire. The cover page should be attractive and have a professional look instead of an advertisement brochure [Tolonen 2005, Dillman 2007]. The information on

the page should be limited to the most essential information, such as contact information,

incentives, confidentiality, researchers, sponsorship, completing time, the address to

return the questionnaire and the phone number to get more information [Salant 1994,

Brennan 2009]. The verbal appeal and the visual design of the cover page should be

formulated properly for avoiding mutual confounding [Redline 2004, Tourangeau 2004].

Consequently, a cover page with introductory statement was well-written in the

multicultural questionnaire, which included a multicultural picture, clear and complete

introduction, contact information of the principal researcher and his principal supervisor,

and submission information of the questionnaire. The cover page highlighted the reason

for the survey, voluntary participation, completing time, confidentiality, remuneration of

$20 and feedback of the study results for high response rate and quality of data.

Meanwhile, listing the above information only in the cover page is not sufficient, as

the page can easily get lost. The back cover of a questionnaire should thank the

respondent for participation and invite comments with enough space provided [Brennan

1993, Salant 1994, Dillman 2007]. The back page is especially important when the

respondents are older people, many of whom can have impaired vision [Dillman 2007].

Accordingly, the back page of this multicultural questionnaire was well-written, which

contained appreciation for the participant, one column for additional comments of the

participant, contact information of the principal researcher, and two significant pictures.

4.2.10. Length of questionnaires

The length of a questionnaire may affect the respondents' burden, the response rate

and the reliability of data [McIntyre 1999]. A short questionnaire may have lower

respondent burden and lead to high response rate [Dillman 1993, Bogen 1996], but lack specific questions related to the topics [Gama 2009]. On the contrary, a long questionnaire tends to tire to respondents and get lower response rate because respondents become reluctant to complete them or complete only partially [Treat 1992, Apodaca 1998]. Even if they fill completely them, respondents easily get careless in their answers and reliability of the answers can decrease [Biemer 1991, Virginia de Wolf 2001]. Nevertheless, a long questionnaire by mail administration may be more effective and generate higher response rate than a short questionnaire [Brennan 1992]. Envidence shows that the length of a questionnaire should depend on the survey format and the characteristics of the respondents [Eiselen 2005, Nieuwenhuijsen 2005, Gama 2009].

Meanwhile, type size of text is important. If type size is made smaller, the same number of questions can be fit on fewer pages, but readability of the questionnaire may be reduced. For some respondents, this may be a reason for not answering the questionnaire. On the other hand, keeping the type size big enough to ensure good readability will increase the number of pages of the questionnaire, making the questionnaire appear longer. For other respondents, this may also be a reason for not answering the questionnaire. Survey researchers should balance between the readability and length of the questionnaire [Tolonen 2005]. In general, the questionnaire length should be designed based on proper time requirement of the completion, such as 5-20 minutes for telephone interview, 15-30 minutes for self-administered questionnaire, and 30 minutes to one hour for face-to-face interview [Rea 2005, Koponen 2011]. Therefore, the multicultural lifestyle change questionnaire was designed a $20 - 30$ minutes long instrument with appropriate type size for high response rate and response quality.

4.2.11. Scaling response categories

The scaling scheme of the response alternatives to closed-ended questions should be developed at the same time as the questions are drafted and the layout of a questionnaire for facilitating data capture and analysis [Acharya 2010, SC 2010]. A good questionnaire should have validity, reliability and discrimination. Discrimination simply means that people with different scores on a questionnaire should differ in the construct of interest to researcher(s) [Field 2003]. The Likert scale is one of the most widely used itemized scales [Malhotra 2006, Trochim 2006c]. When constructing Likert type of scales, the researcher should make the major decisions: (a) the number of scale categories, (b) unipolar or bipolar scale, (c) balanced or unbalanced scale, (c) odd or even scale, (d) forced or nonforced choice [Schwarz 1991, Lietz 2010].

1. Number of scale categories

Generally, the proper number of categories should be between five and nine, between 5-point and 7-point scale options are the most commonly used [Dillman 1993, Brace 2004, Dawes 2008]. Yet, there is no single optimal number of categories [Bartels 2002, Malhotra 2006, Trochim 2006c]. The number of points for scale of alternatives should be determined by how researchers intend to use the data [Bradbrun 2004]. According to the requirement of data analysis, the scales of response categories (single choice) were rated 5 to 8 points in the multicultural questionnaire. Some of the behavior change questions in Sleep Change and Mood Change sections, and the belief change questions in all sections were constructed seven response scales (6, 5, 4, 3, 2, 1, 0). The health status change

questions were rated eight response scales (7, 6, 5, 4, 3, 2, 1, 0). A higher score is to denote a more favorable attitude [O'Muircheartaigh 1995, Marshall 2009, SC 2009b].

2. Unipolar or bipolar scale

The ordinal scales include Unipolar Scale (scale that measures along one dimension such as from "poor" to "excellent" or a scale from 0 to 10) and Bipolar Scale (scale that measures in two directions, such as from "very dissatisfied" to "very satisfied" or a scale from -5 to +5) [Kahn 2005, Meric 2006, Fouladi 2008]. According to the suitability, the response options of the questions in the multicultural questionnaire were only constructed unipolar scales rather than bipolar scale.

3. Balanced or unbalanced scale

A balanced or unbalanced scale respectively presents equal or unequal number of categories. Generally, the scale is balanced for obtaining objective data. However, if the distribution of responses is likely to be skewed, either positively or negatively, an unbalanced scale with more categories in the direction of skewness may be appropriate [Bartels 2002, Malhotra 2006]. A common mistake when creating a rating scale is including "no opinion" or "not sure" or "not known" as a middle response [Clarke 2008, BRUW 2011]. For that reason, the balanced scale was only applied to the options of the questions at mood status change, sleep quality change and health status change in the multicultural questionnaire. The option of "Do not know" was listed at the end of categories of each question.

4. Odd or even scales

Survey researchers should consider offering respondents an even or an odd number of response scale options, including a "neutral" or "middle" option for the optimal number of response scale option [Garland 1991, Lietz 2010]. If presented with an even number of response categories, respondents who feel in the middle must "lean" toward one end [Bradbrum 2004]. With an odd number of categories, the middle scale position is designated as neutral. The decision to use an odd or even number of categories depends on whether some of the respondents may be neutral on the response being measured. If a neutral response is possible from at least some of the respondents, an odd number of categories should be used [Bartels 2002, Malhotra 2006]. On that account, in the multicultural questionnaire, the response scales of categories were designed properly to odd or even comparison scale according to different questions. For example, the odd comparison scale and a neutral category were constructed at the options of questions in changes of mood status, sleep quality, physical exercise time, physical activity level and health status for higher validity and lower random error; the even comparison scale were constructed in the options of questions in other changes.

5. Forced versus nonforced scales

On forced rating scales, the respondents are forced to express an opinion, because a "no opinion" option is not provided. If a sufficient proportion of the respondents do not have opinions on the topic, marking the middle position will distort measures of central tendency and variance. Therefore, the accuracy of data may be improved by a nonforced scale that includes a "no opinion" category [Malhotra 2006]. Given that some of the

respondents could not decide their choice on the options of some questions in the multicultural questionnaire, marking middle alternative could distort measurement of the lifestyle changes. Thus, the nonforced scale that included a "Do not know" category was used in the alternative scales, which was placed at end of scale and rated 0 score.

4.3. Translation of language

When a study is conducted internationally or among diverse cultural groups or sub-groups whose members speak different native languages, it is necessary to translate and administer the questionnaire in different languages [Lee 1999]. The questionnaire should be translated and back-translated preferably by the multicultural experts and translators, who should be proficient in the languages and the cultures, good at understanding of the subject domain measured [Hambleton 1995, Nieuwenhuijsen 2005], and dexterous in good item writing [Hambleton 1998]. The translated questions should correspond to the original questions not so much in the wording but more in the intended meaning of the questions [Swan 1985, Harkness 2003]. Once the preliminary or initial translation (forward translation) are completd, it should be back-translated to the original language by someone with bilingual and bicultural expertise [WHO 2016a]. The WHO and other international medical research and treatment organisations have seen back translation as a highly useful device in translating international questionnaires and surveys, as well as diagnostic and research instruments [Ozolins 2009, WHO 2016a]. Discrepancies must be examined and the translated questions must be redrafted and back-translated again. This procedure of forward-translation and back-translation may require several iterations until the translated version is satisfactory [CDC 2003, WHO 2016a]. Though back-translation

is generally an acceptable translation practice, it is not accepted as sufficient in itself for establishing multi-lingual equivalence [Faddegon 2011, SMHS 2016]. Obviously, other translation methods or integrated translation methods should be used in order to establish cultural equivalence [Trimble 2010, Ei-dali 2011]. Therefore, the dynamic and cultural measurement equivalence translation with back-translation (i.e. bilingual specialists' translation and native speaking specialists' review with back-translation) were applied in equivalence translation in the multicultural lifestyle change questionnaire [Zakhir 2009, Trimble 2010, Kashgary 2011, Yanhua 2011, Dayan 2012].

According to the principles, the multicultural lifestyle change questionnaire was developed as the source questionnaire in English, then producing or being translated to French and Chinese versions [Harkness 2003, CSDI 2010, Harkness 2010]. Meanwhile, English version was revised or back-translated due to revision of French and Chinese versions. Further, each revised language version produced other two new language versions [Fink 2003-8, CDC 2003, CSDI 2010]. The versions of three languages were translated and back-translated many times and reviewed many times by bilingual specialists and native speaking specialists until the versions were satisfactory [Kankaraš 2010, MacEntee 2016]. The trilingual (English, French and Chinese) multicultural health researcher and questionnaire designer was an immigrant and a translator, familiar with cultures and acculturations of the target population, and proficient multicultural survey item writing. When constructing, translating, back-translating and revising versions of the three languages, the designer considered fully the factors: (1) all immigrant respondents should be presented with the same question and options, regardless of their linguistic and cultural backgrounds; (2) the questions or instructions in the multicultural questionnaire

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could be understood by the respondents in the same way in their languages; (3) the instrument could collect equivalent information [Behling 2000, Pan 2007]. The researcher achieved semantic, content, technical, criterion, conceptual, structural, normative and psychometric equivalence of the three language versions as far as possible [Chávez 2005, CADC 2007, Lee 2009, WHO 2016a].

4.4. Pre-evaluation and revision of questions and questionnaire

No question is perfect for every respondent that will be encountered in a survey. Pre-survey evaluation of questions and questionnaire may find and reduce the potential problems, and facilitate the process of constructing a valid questionnaire [Willis 1999, Converse 1986, Fowler 1995, CDC 2003]. It is obvious that each translated version of a multicultural questionnaire should be pre-assessed separately, because language equivalency does not ensure cultural equivalency [Gille 1983, van de Vijver 1998, Sireci 2006]. The pre-evaluation should include review and inspection of experts who are knowledgeable in the field of study and questionnaire development, and people of the target population [Gower 1993, CDC 2003, Nieuwenhuijsen 2005].

It is essential that multicultural research experts review the questionnaire at all stages of the questionnaire development process, and address the relevance ("face validity") and completeness ("content validity") of the instrument, as well as the meaning of individual questions [Gower 1993, Sudman 1996, Schoon 1998, CDC 2003]. Accordingly, the drafts of English, French and Chinese versions of this multicultural lifestyle change questionnaire were reviewed by the multicultural and bilingual experts and questionnaire

development specialists for identifying problems, adding translation options, and assuring linguistic and cultural harmonization [Harkness 2003, Harkness 2010, CSDI 2010].

Meanwhile, it is important that multicultural questionnaire designers discuss in-depth with focus groups in the target subjects before pilot-testing the questionnaire in order to evaluate if the questions can be equally interpreted and understood and if the answers can be analysed effectively [Sudman 1996, Armstrong 2000, SC 2010]. Thus, English, French and Chinese immigrants in Ottawa and Gatineau, who represented the target population, were properly selected by the multicultural investigator to serve as focus group members (5-10 immigrants for each group) for inspecting the questionnaire. Homogeneous groups (i.e. English or French or Chinese immigrant sub-group) may be preferred [Bowling 2002, Nieuwenhuijsen 2005].

According to feedback from multicultural health experts, questionnaire development specialists and immigrants of the three language sub-groups, the drafts of three language versions were revised equally to the pilot-testing versions, so that they could meet the construction principles of the multicultural lifestyle change questionnaire – equality, rationale, clarification, understandability, feasibility, appropriateness, answerability and assessability [Hirschfeld 2000, Harkness 2010].

Chapter 5

Pilot-Testing of Multicultural Lifestyle Change Questionnaire – A Pilot study

A completed initial questionnaire (draft) is only the first step to design a successful questionnaire. Ultimately, every new questionnaire must be tested and refined under real-world conditions [Bradbrun 2004]. A pilot study is usually conducted in order to evaluate validity, reliability and other characteristics of a designed questionnaire [Biemer 2003, Luepker 2004, Dillman 2007, SC 2010]. Therefore, the multicultural lifestyle change questionnaire was evaluated by a multicultural pilot study in the target population.

5.1. Identification of the target population of the multicultural survey

English, French and Chinese speaking immigrants of the first generation in Ottawa (Ontario) and Gatineau (Québec), Canada were defined as the target population of the multicultural lifestyle change survey. The participants must have been 18 years or older, have resided in Ottawa or Gatineau one year or more, and had been 16 years or older when they arrived in Canada (*eligible* or *sampling criteria*). English immigrants were defined as the immigrants who were born in Australia, Ireland, New Zealand, South Africa, United Kingdom, U.S.A., and other former British colonies (i.e. Bahamas, Ghana, Guyana, Nigeria, Zimbabwe, etc), in which English was first or maternal language. French immigrants were defined as the immigrants who were born in Belgium, France,

Luxembourg, Monaco, Switzerland, and former French colonies (i.e. Congo, Cote

d'Ivoire, Guinea, Haiti, Niger, etc), in which French was first or maternal language.

Chinese immigrants were defined as the immigrants who were born in mainland China,

Taiwan, Hong Kong, Macao, in which Chinese was first or maternal language.

5.2. Identification of the pilot-testing sampling population

Part of the target population of this multicultural lifestyle change survey was

identified as the pilot-testing sampling population. At least 121 immigrants (not less than

35 subjects for each sub-group of English, French and Chinese immigrants) in the two

cities were recruited as the pilot-testing participants of the multicultural lifestyle change

questionnaire. The sample size was based on the sampling recommendation of Dillman –

about 100 subjects for a pilot study [Dillman 2007], and the general recommendation of

Altman - at least 50 subjects for a pilot-testing [Ross 1998, Altman 1999, Ekeberg 2008].

5.3. Sampling method of the pilot-testing population

Random sampling was deemed impracticable for the pilot-testing and could bring

greater pilot-testing bias because immigrant status of the pilot-testing subjects could not

be identified effectively according to the sampling criteria. A purposive sampling method

was employed in recruitment of the pilot-testing participants. Non-probability sampling is

often used to select individuals in a pilot study, and to test questions in a questionnaire to

ensure that the questions asked and concepts used are clear to respondents. Through the

pilot-testing use, the questions can be made acceptable to these people and may be

acceptable for all members of the population [SC 2010, NSS 2015].

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5.4. Recruitment of the pilot-testing participants

The participants were recruited to the pilot study by the recruitment strategies (English, French and Chinese pilot-testing flyers and/or posters on bulletin boards) at the data collection sites (adult educational centres/schools, churches and community in Ottawa - Gatineau region). Immigrant status of the participants could be identified by teachers, Christian elders and research assistants at the sites.

5.5. Pilot-testing administration mode

The paper-and-pencil mode of self-administered questionnaire completed in the presence of research staff was applied to the pilot-testing administration of the questionnaire, because it was suitable, practicable and optimal administration mode for data collection of the pilot-testing of the multicultural questionnaire [Tang 2008].

5.6. Pilot-testing of the multicultural lifestyle change questionnaire

A multilinguistic pilot-testing can be significantly more challenging than a monolingual or bilingual pilot-testing at nearly every step of the process, particularly at recruitment of participants, data collection and statistical analysis, due to its complexion and difficulty [Harkness 2010]. However, the pilot-testing could effectively assess validity and reliability of the multilinguistic questionnaire, and help to revise the questionnaire [Wang 2004, Urbán 2010]. A pilot-testing generally include three phrases.

5.6.1. Pilot-testing phrase I (pilot-pretesting questionnaire)

A pilot-pretesting or informal pretesting was conducted using the preliminary / initial questionnaire in a small sample of people - the pilot-pretesting focus groups (5–10 subjects for each language sub-group) who were as similar as possible to the pilot-testing respondents [HC 2010, SC 2010]. The multicultural pilot-pretesting subject size was based on OERL's 5-15 pretesting individuals [CDC 2003, OERL 2010]. The multicultural researcher conducted focus group pretesting of the questionnaire draft to assess whether it was easily understood by respondents and whether they were likely to provide the correct responses [SC 2011]. Meanwhile, the pretesting focus groups were consulted for revising appropriately the pretesting draft. The informal pretesting of the questionnaire was used to: (a) provide information on possible ethical problems; (b) help determine if the research questions were appropriate; (c) help determine if the levels of measurement were proper for the selected variables; (d) provide a check that the pilot-testing population was appropriately defined; (e) provide information on the feasibility and the appropriateness of the pilot-testing sampling method; (f) help determine pilot-testing sample size; (g) help determine the length of the questionnaire; (h) examine the quality of questionnaire (clarity, difficulty and understandability of the questions); (i) scrutinize question wording, suitable question sequence and response categories; (j) identify errors in questionnaire layout and instructions; (k) determine problems caused by the respondent's inability or unwillingness to answer the questions; (l) corroborate the flow of the questionnaire overall, and the level of respondent interest and attention; (m) suggest additional response categories; (n) provide a preliminary indication of the response time length and response rate [Taylor-Powell 2000b, CDC 2003, Walonick 2010, SC 2010].

The pretesting subjects of three sub-groups were invited respectively to attend small seminars of their original language, read and fill the initial questionnaire, and gave views on the questions. According to the feedback from the respondents, the pilot-pretesting questionnaire was revised in words and sentences, content of questions and format of questionnaire, and formulated to a pilot-testing questionnaire. The pilot-pretesting data was not included in the pilot-testing survey data and the respondents who participated in the pilot-pretest did not complete the pilot-testing questionnaire [Taylor-Powell 2000b].

5.6.2. Pilot-testing phrase II (pilot-testing questionnaire)

The multicultural pilot-testing that occurred before the main multicultural lifestyle change survey was conducted. The pretesting focus groups were consulted for revising properly the pilot-testing draft. All of the qualified participants received English or French or Chinese documents, which included a pilot-testing-multicultural lifestyle change questionnaire of English (see appendix 6.1: page 433) or French (see appendix 6.2: page 452) or Chinese version (see appendix 6.3: page 470 and appendix 6.4: page 488), a pilot-testing-Flyer (see appendix 6.5: page 506), a pilot-testing-Information Sheet (see appendix 6.6: page 510) and a Letter of Introduction for the principal investigator (see appendix 6.7: page 518). They answered the questions in the pilot-testing questionnaire and returned the questionnaires to the principal researcher or research assistants twice, 2 weeks apart [Wang 2004, Lobiondo-Wood 2005, Paluck 2007, Hogan 2009]. The return acceptance of questionnaires of the two tests was closed respectively in the third week after the beginning of the test or the retest, but the researcher might accept continuously feedback for revision of the pilot-testing questionnaire. The pilot-testing

data were not included in the multicultural lifestyle change survey data and the respondents who participated in the pilot-testing did not complete the survey questionnaire for reducing effectively biases [Rattray 2007, Lietz 2008].

5.6.3. Pilot-testing phrase III (data analysis)

The responses of the pilot-testing multicultural lifestyle change questionnaire were entered into a Microsoft Excel Worksheet to be analyzed by the analysis software (SPSS 22), which included analysis of validity and reliability for evaluating the multicultural lifestyle change questionnaire [John 2000, Davis 2005, Ransom 2010, Neto 2010]. Face validity and content validity of the questionnaire were assessed respectively by inspection of pilot-testing subjects and review of experts [Wikipedia 2010]; criterion-related validity was assessed statistically by Pearson correlation coefficient value (0.8 or higher Pearson correlation coefficient for satisfactory validity) [Eshaghi 2006, Ekeberg 2008]. Construct validity was evaluated statistically by alpha coefficient value (0.7 or higher Cronbach's alpha coefficient for satisfactory construct validity) [Westen 2003, Garson 2010, Eshaghi 2006]. Test-retest reliability and internal consistency reliability of the questionnaire were assessed respectively and statistically by Pearson correlation coefficient (0.8 or higher Pearson correlation coefficient was regarded as acceptable test-retest reliability) and alpha coefficient value (0.7 or higher Cronbach's alpha coefficient was regarded as acceptable test-retest reliability) [Grau 2007, Hopkins 2000, Lubian 2010, Vaz 2013].

5.7. Results and analysis of the pilot-testing

5.7.1. Results of the pilot-testing

121 qualified immigrant participants (respectively 41, 42 and 38 subjects for English, French and Chinese immigrants) in Ottawa and Gatineau, Canada completed respectively the multicultural lifestyle change questionnaire (pilot-testing) of English, French or Chinese versions twice in 2-3 weeks.

5.7.1.1. Reliability of the questionnaire

The results of alpha coefficient calculation for test-retest reliability analysis were presented in Analysis Result Table of Validity and Reliability (see appendix 2: page 373).

1. Test-retest reliability

Most of the Pearson coefficients and the average Pearson coefficient ($\bar{r} = 0.812$) were satisfactory by criterion of 0.80 or higher [Graziano 2013, Vaz 2013].

2. Internal consistency reliability

Most of the alpha coefficients and the average Cronbach alpha coefficient ($\bar{\alpha} = 0.772$) were satisfactory by Nyunnally's (1978) criterion of 0.70 [Grau 2007, Hopkins 2010].

5.7.1.2. Validity of the questionnaire

1. Face validity

All of questions in three versions of the Multicultural Lifestyle Change Questionnaire for the pilot-testing could be understood equally and completed easily by English, French and Chinses speaking immigrants.

2. Content validity

Three versions of the Multicultural Lifestyle Change Questionnaire for the pilot-testing were reviewed and affirmed by multicultural research experts, questionnaire design specialists, and bilingual teachers or specialists.

3. Criterion-related validity

The results of Pearson coefficient calculation for criterion-related validity analysis were presented in Analysis Result Table of Validity and Reliability (see appendix 2: page 373). Most of the Pearson coefficients and the average Pearson coefficient ($\bar{r} = 0.812$) were satisfactory by criterion of 0.80 or higher [Eshaghi 2006, Ekeberg 2008].

4. Construct validity

The results of alpha coefficient calculation for construct validity analysis were presented in Analysis Result Table of Validity and Reliability (see appendix 2: page 373). Most of the alpha coefficients and the average alpha coefficient ($\bar{\alpha} = 0.772$) were satisfactory by Nyunnally's (1978) criterion of 0.70 [Hopkins 2010].

5.7.2. Analysis and discussion

According to inspection of the pilot-testing immigrants of the three language sub-groups, and assessment of the research experts and specialists, the pilot-testing questionnaire had high face validity and content validity.

Criterion-related validity of a questionnaire with similar measure may be analyzed or assessed by Pearson correlation coefficient [Crane 2005, Eshaghi 2006, Ekeberg 2008,

Said 2011]. General criterion-related validity of the multicultural lifestyle change questionnaire should be assessed by most of the Pearson correlation coefficients and the average Pearson correlation coefficients instead of the single Pearson correlation coefficient, because the questionnaire was an integrated questionnaire which included many independent and dependent variables. It was unreasonable that the single Pearson coefficient was applied in assessing criterion-related validity of the integrated questionnaire. Though some of the Pearson coefficients were less than 0.80 in the table, most of the Pearson coefficients and the average Pearson coefficient were over 0.80, which showed that the multicultural questionnaire had a high criterion-related validity [Eshaghi 2006, Ekeberg 2008].

Construct validity with similar measure might be also expressed as reliability (correlation) and could be analyzed or assessed by Cronbach's alpha coefficient [Westen 2003, Smith 2005, Said 2011]. Cronbach's alpha coefficient to evaluate reliability may be used to assess construct validity. Most of the alpha coefficients and average alpha coefficient were over 0.70, which showed that the questionnaire had a high construct validity [Hopkins 2010].

Test–retest reliability and internal consistency reliability of a questionnaire can be assessed respectively by Pearson correlation coefficient and Cronbach's alpha coefficient [Crane 2005, Graziano 2013, Deniz, 2013, Vaz 2013]. General test–retest reliability or internal consistency reliability of the multicultural questionnaire should be assessed by most of the Pearson coefficients or the alpha coefficients and the average Pearson coefficients or the Cronbach's alpha coefficient instead of the single Pearson coefficient or alpha coefficient, as it is also unreasonable that the single Pearson coefficient and

alpha coefficient were used in assessing test–retest reliability and internal consistency reliability of the integrated questionnaire. Though some of the Pearson coefficients or the alpha coefficients were less than 0.8 or 0.70 in the tables, most of the Pearson coefficient or the alpha coefficients and the average Pearson coefficient or alpha coefficient were over 0.80 or 0.70, which showed that the multicultural questionnaire had a high test–retest reliability and internal consistency reliability [Grau 2007, Hopkins 2000, Hopkins 2010, Graziano 2013, Vaz 2013].

Consequently, integrated statistical analysis disclosed that the multicultural lifestyle change questionnaire had a high validity and reliability, and could be applied to the multicultural lifestyle change survey after being revised appropriately.

5.8. Modification of the pilot-testing questionnaire

English, French and Chinese versions of the pilot-testing multicultural lifestyle change questionnaire were revised appropriately to the final multicultural lifestyle change survey questionnaire according to data of the pilot study, and feedback, suggestions and advice of the pilot-testing respondents, the health research experts, the questionnaire development and testing specialists, and the bilingual teachers. The modification included revisions for some of questions, response options, and cover and back pages (see appendix 3: page 375). The multicultural questionnaire designer attempted to make generalizability of the multicultural lifestyle change questionnaire from the pilot-testing population to the multicultural lifestyle change survey in full population and more wide use. The multicultural lifestyle change instrument will be revised and improved further in future pilot-testing studies.

Chapter 6

Multicultural Lifestyle Change Survey

-- A Multicultural Study

6.1. Sample of the multicultural lifestyle change survey

6.1.1. Identification of the sampling population

Part of the immigrant target population at the adult educational centres/schools, community churches and residential communities in Ottawa and Gatineau, Canada was identified as the sampling population of the multicultural lifestyle change survey.

6.1.2. Determination of the sample size

The determination of sample size in a survey depends mainly on five factors: (1) desired degree of precision [Glasow 2005], (2) statistical power required [Aron 2011], (3) ability of the researcher to gain access to the study subjects [Pinsonneault 1993, Nieuwenhuijsen 2005], (4) degree to which the target population can be stratified [Salant 1984, Attewell 1991], (5) selection of the relevant analysis units [Attewell 1991].

Generally, the larger the sample, the more precisely it reflects the target population [Salant 1994]. However, the larger sample than the requirement of the desired results is wasteful of resources whereas very small samples often cannot lead to the desired level of precision. In general, the larger the sample, the greater will be the reliability of the resulting estimates; but validity will not be improved with an increase in sample size

[Levy 1999]. Some of statisticians indicate that a small, representative sample may reflect the population from which it is drawn appropriately, and the rate of improvement in the precision decreases as the researcher's sample size increases. For example, to increase a sample from 250 to 1,000 only doubles the precision [Attewell 1991, Pinsonneault 1993]. The main objective should be to obtain both a desirable accuracy and a desirable confidence level with minimum cost [Salant 1994, Glasow 2005]. Some of survey researchers suggest the rough guidelines for determining adequate sample size as 50-very poor, 100-poor, 200-fair, 300-good, 500-very good, and 1000 or more-excellent [Comfrey 1992, Ryu 2006]. However, some of survey experts recommend a rule of thumb that the number of subjects to item ratio should be at least 10:1 or 5:1 [Nunnally 1978, Gorsuch 1983 and Hatcher 1994].

It has been known that the multicultural lifestyle change survey aimed at examining immigrant lifestyle behavior and belief changes. It might not need very high level of precision but need high response rate and quality of data. A smaller non-significant distribution sample, which can easily get access and be stratified, was acceptable. The multicultural questionnaire included 53 questions (items). According to the rule of thumb that the number of subjects to item ratio in questionnaire should be at least 10:1 and the characteristics of this multicultural survey, at least *600 qualified immigrants* (respectively not less than 200 subjects for English, French and Chinese sub-groups) in the two cities were planned to recruit to the survey. Nevertheless, the multicultural researcher intended to recruit more immigrants (700 – 800 subjects or more: 250 subjects or more for each of three sub-groups) for higher precision.

6.1.3. Sampling method and rationale

Sampling is a means of selecting a subset of units from a population for collecting information [SC 2010]. There are two types of sampling: non-probability and probability sampling. The type chosen depends primarily on whether reliable inferences are to be made about the population. Probability sampling involves the selection of units from a population based on the principle of randomization, but it is more complex, time consuming and usually more costly than non-probability sampling. Differently, non-probability sampling uses a subjective method of selecting units from a population and provides a fast, easy and inexpensive way of selecting a sample, but the sample should be selected appropriately, and the confounders and biases should be controlled effectively [SC 2010]. Non-probability sampling can be used for descriptive and/or exploratory surveys to gain insights into people's attitudes, beliefs, motivations and behaviors.

Some of researchers observe that a prerequisite to sample selection is to define the target population as narrowly as possible [Salant 1994]. However, it is often not possible to know the true population. Other researchers suggest that the theoretical samples selected purposively can exhibit the desired features of the researcher's study [Attewell 1991, Pinsonneault 1993]. Although the theoretical sample is not randomly selected, the respondents that are selected properly within the target population can achieve approximately a random effect [Glasow 2005]. Some of surveyors applied purposive sample for immigrant participants in cross-cultural surveys [Ali 2004, Morren 2012].

Meanwhile, the choice of probability or non-probability sampling also depends on accessibility to subjects or whether there are enough desired subjects for the survey [Glasow 2005]. A random sampling was not practicable for participant recruitment of the

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multicultural lifestyle change survey, because number and distribution of the immigrants

of the three language sub-groups in the two cities could not be known precisely and their

immigrant status could not be identified effectively according to the sampling criteria.

Moreover, it was difficult to gain access to a lot of desired and qualified adult immigrant

subjects of the first generation in Ottawa and Gatineau. Therefore, a purposive sampling

method was applied to recruit English, French and Chinese speaking immigrants, as it

was rational and available for a descriptive and explanatory multicultural survey

[Lobiondo-Wood 2005, Trochim 2006]. The purposive sampling could result in enough

qualified and representative subjects, cheaper and quicker data collection, less

confounders and lower biases [Heerwegh 2007, Bjertnaes 2007, Gledhill 2008, SC 2010].

6.1.4. Quota sampling

A Quota is a sample size for a sub-group. It is sometimes useful to establish quotas to

ensure that survey researchers' sample accurately reflects relevant sub-groups in the

target population [IRE 2013]. For example, men and women have somewhat different

disease incidences in many areas. If the researchers want their survey to accurately reflect

the general population's disease incidences, they will want to ensure that the percentage

of men and women in their sample reflect disease percentages of the general population.

Hence, the multicultural project researcher sampled purposively the participants with

proper quota in Mother Tongue (English, French and Chinese immigrants of approximate

number), Age (diverse age groups), Gender (immigrant men and women of approximate

number), Original Countries (diverse English and French speaking countries in the world

and different Chinese speaking regions in China), Category of Immigration (Principal

Applicant, Spouse and Dependant, Family Class, and Refugee immigrants respectively in a certain number), and etc, so that the sample could represent maximally general populations of the three language sub-groups with minimum sampling biases.

6.2. Multicultural lifestyle change questionnaire survey

6.2.1. Recruitment of survey participants

The volunteering adult immigrants were recruited to the survey by the recruitment strategies: English, French and Chinese flyers and/or posters on bulletin boards at the data collection sites in Ottawa and Gatineau, excluding the pilot-testing participants.

6.2.2. Use of key informants

Using key informants is widespread in studies of social and health science [Bradbrun 2004]. Key informants are helpful for recruitments of sampling population, in particular non-probability sampling subjects, as they can provide available information and assistance for reducing costs and improving accuracy of the survey [Bradbrun 2004].

Consequently, directors and teachers in the adult educational centres/schools, research assistants in the communities and the churches in Ottawa and Gatineau were defined as key informants for identifying the qualification of the English, French and Chinese immigrant participants and assisting the multicultural lifestyle change survey. The multicultural surveyor contacted with the 6 directors, the 16 teachers and 18 research assistants by face-to-face.

Meanwhile, the multicultural project researcher kept contact with 18 multicultural health experts (including supervisors of the researcher in Flinders University), 7

questionnaire development experts and 3 data analysis specialists by E-mail and telephone, and accepted their instructions and help during the research process.

Furthemore, the principal researcher contacted 4 governmental officers, 5 health programmers, 2 editor-in-chiefs and 15 editors by E-mail for knowledge translation and publication of research findings.

6.2.3. Administration mode

The paper-and-pencil mode of self-administered questionnaire completed in the presence of research staff was employed to administration of the multicultural lifestyle change survey for ensuring higher quality of data and lower errors [Tang 2008, SC 2008].

6.2.4. Survey process

All of the qualified participants received English or French or Chinese documents: a multicultural lifestyle change questionnaire of English (see appendix 7.1: page 527) or French (see appendix 7.2: page 547) or Chinese version (see appendix 7.3: page 568 and appendix 7.4: page 587), a Flyer Recruiting Participant (see appendix 7.5: page 606), an Information Sheet (see appendix 7.6: page 610) and a Letter of Introduction for the principal investigator (see appendix 7.7: page 618). 768 questionnaires of 12 pt were provided to general participants; 42 questionnaires of 14 pt were provided to the visually impaired ones. They answered the questions in the survey questionnaire, and returned the questionnaires to the principal researcher or the research assistants within two weeks. The return acceptance of questionnaires was closed in the third week after the participants received the questionnaires.

Meanwhile, the multicultural project researcher considered fully the collecting characteristics of data for the successful survey: (1) valid data: to collect data that is supposed to be collected; (2) reliable data: to collect the data in a consistent or reproducible manner; (3) unbiased data: to collect the data in a way that does not systematically underestimate or overestimate the true value; (4) discriminating data: to collect data which difference between respondents are able to be discriminated appropriately [CDC 2003].

6.3. Methods and strategies of data analysis

The analysis methods and strategies data should be developed before data collection and refined incessantly during data collection [CDC 2003]. Consequently, the collected data of immigrant lifestyle changes were entered into a Microsoft Excel Worksheet to be analyzed by the software SPSS 22. The data analysis comprised Descriptive Analysis (General Frequency Distribution, Percentages and Significant Level), Multivariate Analysis and Factor Analysis (see appendix 4: page 379).

6.4. Measurement of response rate and non-response rate

Generally, response rate is one indicator of the survey quality, reflecting the coverage of the sample [Tolonen 2005]. It is possible that the response rate is affected by the culture(s), the type(s) of respondents or by the salience of the survey [de Heer 1992, Wright 1995]. Similarly, non-response rate is also a measure of the survey data quality, reflecting the possible difficulties of the data collection process and the skills of survey organizers [Chapman 1991]. Nonresponse can decrease the representativeness of the

results, limit the comparability of the results with other surveys and between population groups, and increase the bias of the trend estimates [Lesser 1992, Virginia de Wolf 2001].

It has been known that simple response rate is usually calculated as the proportion of the survey sample that participates in the survey [Tolonen 2005]. The immigrant subjects to register voluntarily the multicultural lifestyle change survey were divided into eligibles (qualified subjects) and not eligible (unqualified subjects). The eligibles were those who fulfilled the survey definition of eligibility; the remaining ones were usually classified as non-eligibles. The non-eligibles or unqualified subjects did not involve in the multicultural survey. Among eligibles, the subjects can be either respondents or non-respondents. The respondents included the respondents with complete responses and the respondents with partial responses. The non-respondents were those from whom one could not obtain any information. The response rate of the multicultural lifestyle change questionnaire was calculated as: *Eligible rate = participants - ineligibles / participants x 100%;* Response rate = *respondents / eligibles x 100%; Non-response rate = non respondents / eligibles* [Tolonen 2005].

Obviously, the response rate should be high enough to provide the results, which can be generalized to the entire target population without bias. The low response rate can lead to low data quality, bias the results and make the interpretation of data more difficult. On the contrary, the high response rate and the representative sample can improve the precision of the estimates, make results more accurate and reliable [Tolonen 2005]. Though 80 to 90% response rate is very difficult to achieve, the general recommendation for the response rate should be 90% or higher rather than 70% for decreasing effectively response bias [Brennan 1993, Jones 1996, Tolonen 2005]. Many of studies show that

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high response rates could be obtained by using this procedure in conjunction with a monetary incentive [Jobber 2004, Brennan 2004, Hawley 2009]. Some of studies disclose that mail survey response rates could be raised by pre-notification and/or reminders [Yammarino 1991, Brennan 2009].

Certainly, the multicultural researcher attempted to increase response rate by the effective ways (i.e. contacting directly and indirectly with immigrant participants, pre-notification, reminding before the survey, monetary incentive of $20, and etc) for achieving a high (over 90%) enough response rate, decreasing response bias and acquiring more truthful and precise results [Fox 1988, Chun 1995, Wright 1995]. The multicultural questionnaire was designed as far as possible a short and clear respondent-friendly questionnaire for raising effectively response rate and precision [Eaker 1998, Dillman 2007]. Moreover, the multicultural project researcher and research assistants explained the questions in the questionnaire and instructed response of the participants during the survey, and reviewed the questionnaires returned. The incomplete and/or ineligible questionnaires were sent back to the respondents, and returned again after being completed or corrected.

6.5. Data management

Well-organized data management ensures that the available data are complete, correct, and verifiable, that the data can be analysed precisely, and that the confidentiality of the data can be secured [Tolonen 2002, Molarius 1998a, Molarius 1998b]. Data management should start at the beginning stage of the survey [Tolonen 2002, Tolonen 2005], and

include error checking of coded data, analysis of missing information, record of invalid responses and so on [Üstün 2001].

On that account, the multicultural lifestyle change data collected from the respondents of three language sub-groups would be coded appropriately and entered completely and punctually to a specific Excel Form for statistical analysis. The multicultural project researcher would check the data during the survey for reducing questionnaire coding errors, systematic data-entry errors and response errors, and ensuring accuracy, correctness and completion of the data.

Chapter 7

Report of Research Results

--- Research Findings and Analysis of Multicultural

Lifestyle Change Survey Results

7. 1. General Frequency Distribution

7.1.1. Results

The multicultural research findings began with an overview of descriptive statistics. The frequency distribution results of the participants were presented in General Frequency Distribution Table of Total Sample (see appendix 5.1: page 400).

7.1.2. Analysis and discussion

It is interesting to note that there were many of remarkable characters in the total sample. (1). Mother Tongue: the most subjects were English immigrants (34.3%), followed by French immigrants (33.1%), and the least subjects were Chinese immigrants (32.6%). (2). Speaking Languages: most of the immigrants could speak English (72.3%); some of the immigrants could speak French (39.0%); and part of the immigrants could speak Chinese (32.7%). (3). Original Countries: the immigrants originated from 71 countries and regions. (4). Age: the most subjects were immigrants of 18-24 years (28.1%), followed by immigrants of 45-54 years (20.6%), and the least subjects were immigrants of 75-84 years (2.6%). (5). Gender: the number of immigrant men (50.7%)

approximated that of women (49.3%). (6). Marriage: the most subjects were married

immigrants (56.2%), followed by single immigrants (29.1%), and the least subjects were

co-habiting immigrants (2.8%). (7). Category of Immigration: the most subjects were

Family Class immigrants (43.7%); the second and the third ones were respectively

Principal Applicant immigrants (23.8%) and Spouse and Dependent immigrants (23.8%);

and the least subjects were Other/Refugee immigrants (8.6%). (8). Duration of

Residence: the most subjects were the immigrants who have lived in Canada for 2-5 years

(34.8%); then, sequentially, 6-10 years (31.7%), 11-20 years (20.9%), 21 years (6.9%), 1

year (5.6%). (9). Education: the most subjects were the immigrants who had University

Education Level (26.4%), followed by the immigrants who had College Education Level

(26.3%); the immigrants of Post-graduate Education Level were only the sixth position

(9.5%); and the least subjects were No Schooling immigrants (0.7%). (10). Employment:

the most subjects were the immigrants of Employed Full-Time (35.7%), followed by the

immigrants of Employed Part-Time (27.5%); the sixth subjects were unemployed

immigrants (22.1%); and the least subjects were the immigrants who did unpaid work

(1.6%). (11). Primary Occupation: the most subjects were Laborer (35.9%); then,

sequentially, Student (26.3%), No Occupation (14.7%), Professional (14.6%),

Administrator (7.5%); the least subjects were Volunteer (0.4%). (12). Religion: the most

subjects were the immigrants of No Religion (41.1%); the religion of the most subjects

was Christinaity (40.04%); then, sequentially, Islam (10.9%), Buddhism (5.9%), Judaism

(0.4); the immigrants of other religions only account for 1.4%. (13). Income: the most

subjects are the immigrants whose income were less than $30,000 (56.3%); then,

sequentially, $30,000 - $49,999 (21.7%), $50,000 - $69,999 (11.2%), $70,000 - $99,999 (2.3%), $100,000 or more (0.7%).

7. 2. Smoking Change

7.2.1. Results

The results of percentage, significance and multivariate (correlation and regression) analysis of the total sample and the sub-groups in smoking were presented respectively in Tables in Smoking (see appendix 5.2: page 406).

7.2.2. Analysis and discussion

The results show that the immigrants experienced smoking change. However, different gender, language and category sub-groups showed different changes in smoking behavior and belief. Some of the demographic factors were correlated with smoking change and/or significantly impacted the change.

7.2.2.1. Percentages in smoking

1. Total sample

The results in smoking show that the immigrants in Ottawa and Gatineau, Canada had higher Smoking Rate (46.05%), Smoking Rate Before Immigration (33.58%) and Smoking Rate After Immigration (36.30%). Smoking Rate After Immigration was higher than Smoking Rate Before Immigration. Immigrant smokers increased after immigration. It is worth noting that smoking belief change rate (44.94%) of the immigrants was higher than their smoking behavior change rate (29.14%), which discloses that smoking belief

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change was not congruent with smoking belief change. It seems that smoking belief could have higher acculturation level than smoking behavior [Landrine 2004]. Because of difference of the cultures, some of immigrants could have higher acculturation level of smoking behavior, others could have higher acculturation level of smoking belief.

Generally, immigrants are less likely to smoke than non-immigrants, and are also more likely to quit than non-immigrants [Newbold 2012]. Nevertheless, in the multicultural lifestyle change survey data, Smoking Rate (46.05%) of the immigrants (age 18+ years) was higher than Ever Smoking Rate (44%, Ever Smoker: current and former smoker combined) of Canada citizens (age 15+ years) in 2012, but lower than Smoking Rate (51%) of Canada citizens (age 15+ years) in 1999. Similarly, their Smoking Rate (36.30%) After Immigration was higher than Smoking Rate (16%) of Canada citizens in 2012 and Smoking Rate (25%) of Canada citizens in 1999 [HC 2013a]. Because of considerable smoking variation between immigrant groups defined by origin region or country [Newbold 2012], and the disparities of survey time, survey method, data collection sites and data analysis methods, the current survey results in smoking rate could not demonstrate that smoking rate of the Canadian immigrants was higher than that of native-born persons in Canada.

It has been known that immigrant smoking or smoking change was related to acculturation, higher acculturation was associated with a greater likelihood of recent smoking, and less acculturated individuals were more likely non-smokers [Abraido-Lanza 2005, Allen 2014]. For example, a study shows that acculturation might drive smoking change, the rate of tobacco use among immigrants might change as they become "acculturated" people [Haddad 2012]. However, other findings reveal that acculturation

did not significantly impact smoking status or smoking rate, and cigarette consumption was inversely associated with the level of acculturation [Su 2002, Mainous 2008].

2. Gender sub-groups

The results reveal that different gender sub-groups had different rates in smoking, which are similar to some of research findings [Hyman 2008, Branstetter 2012, Reiss 2015]. However, all of the rates (Smoking Rate, Smoking Rate Before Immigration, Smoking Rate After Immigration, Smoking Change Rate, Smoking Belief Change Rate) of the immigrant men were higher than those of the immigrant women. In particular, Smoking Rate After Immigration of the immigrant men was higher over two times than that of the immigrant women. According to smoking survey (aged 12 and older) of Statistics Canada in 2011, male smokers (22.3%) in Canadian citizens were more than female smokers (17.5%) [SC 2013a]. The immigrant men could face more challenging and have more psychological pressure after immigration. Therefore, the immigrant men in Ottawa and Gatineau had greater smoking behavior and belief changes than the immigrant women.

It has been known that the effect of acculturation on smoking was not uniform and might even differ from men to women within the same immigrant population [Pérez-Stable 2001, Lara 2005, Haddad 2012, HC 2008], because the association of acculturation and smoking was gender-specific [Bethel 2005, Everhart 2009]. Some of studies reveal that smoking rates for all female immigrants were generally lower than those of male immigrants because male immigrants had higher level of smoking acculturation than female immigrants [Ma 2004, Haddad 2012, van Oort 2006].

However, a research finding in the United States exposes that less acculturated men and more acculturated female immigrants in south Asian immigrants were more likely to be smokers [Constantine 2010]. Moreover, other research finding exhibits that increased smoking prevalence with increased acculturation was consistently observed among Hispanic immigrant women but not among immigrant men [Bethel 2005].

3. Language sub-groups

The results show that different language sub-groups had different rates in smoking. Amongst the three language sub-groups, English immigrants had the highest Smoking Rate (53.32%) and Smoking Rate After Immigration (48.92%), and the lowermost Smoking Rate Before Immigration (26.98%), while Chinese immigrants had the highest Smoking Rate Before Immigration (36.74%), Smoking Change Rate (32.96%) and Smoking Belief Change Rate (57.58%). However, French immigrants had the lowermost Smoking Rate (36.94%), Smoking Rate After Immigration (28.36%), Smoking Change Rate (24.63%), Smoking Belief Change Rate (30.97%). It appears that Chinese immigrants had the greatest smoking behavior change, while English immigrants had the second greatest change, and French immigrants exhibited the least change. It has been known that Smoking Rate of Chinese immigrants decreased after immigration, but Smoking Rate of English and French immigrants increased. Smoking Rate of English immigrants was higher than that of French immigrants. However, data of Canadian smoking survey in 1994 reveal that smoking rate (35%) of Francophone (French-speaking) immigrants were higher than that (26%) of Anglophone (English-speaking) immigrants [SC 2013a]. Some of research findings show that tobacco use among foreign-

born immigrants significantly varied by ethnic and cultural backgrounds or orginal countries [Pérez-Stable 2001, Kim 2005, Newbold 2012]. For example, in the United States, Puerto Rican and Cuban Latino immigrants were more likely to be current smokers who smoked over 20 cigarettes per day than Latino immigrants of other origins, but Central American Latino immigrants had the lowermost smoking rates in the Latino immigrants [Pérez-Stable 2001].

On the other hand, language preference and English language proficiency may exhibit different smoking impacting effects on different linguistic or cultural immigrant sub-groups. For instance, smoking rate was significantly lower among Spanish-speaking Hispanics than among English-speaking Hispanics in the United States [DuBard 2008].

Meanwhile, the results exhibit that Chinese immigrants had the highest Smoking Belief Change Rate (57.58%) or the greatest smoking belief change, while English immigrants had lower Smoking Belief Change Rate (46.40%) or less smoking belief change. However, French immigrants had the lowermost Smoking Belief Change Rate (30.97%) or the least smoking belief change. Evidently, because of environmental change and acculturation, immigrants experienced smoking belief change, but different ethnic and cultural sub-groups showed different changes. Furthermore, a research finding exhibits that acculturation had opposite effects on the same behavior among different ethnic groups or sub-groups [Landrine 2004]. Therefore, different language sub-groups could have different smoking change due to different effects of acculturation. It appears that Chinese immigrants had greater smoking change because they could have higher level of smoking acculturation than English and French immigrants.

4. Category sub-groups

   The survey results reveal that different immigrant category sub-groups had different rates in smoking. Among the four category sub-groups, Principal Applicant immigrants had the highest Smoking Rate (52.33%), Smoking Rate Before Immigration (43.01%), Smoking Rate After Immigration (41.45%) and Smoking Belief Change Rate (53.37%), while Spouse and Dependent immigrants had the lowermost Smoking Rate (41.62%), Smoking Rate Before Immigration (27.41%) and Smoking Rate After Immigration (31.98%), and the highest Smoking Change Rate (29.44%). It is interesting to note that Smoking Rate (44.35%), Smoking Rate Before Immigration (30.79%) and Smoking Rate After Immigration (34.46%) of Family Class immigrants were lower than those of Principal Applicant immigrants and Other (Refugee) immigrants were higher than those of Spouse and Dependent immigrants, but their Smoking Change Rate (28.81%) was lower slightly than that (29.44% or 29.02%) of Spouse and Dependent immigrants or Principal Applicant immigrants and higher a little than that (28.57%) of Other (Refugee) immigrants, and their Smoking Belief Change Rate (45.20%) was lower than that (53.37%) of Principal Applicant immigrants and higher than that (41.62% or 27.14%) of Spouse and Dependent immigrants or Other (Refugee) immigrants. Other (Refugee) immigrants had the lowermost Smoking Change Rate (28.57%) and Smoking Belief Change Rate (27.14%). Principal Applicant immigrants decreased consumption of cigarettes after immigration. On the contrary, but the immigrants of other three sub-groups increased consumption of cigarettes after immigration.

It seems that the four category sub-groups had approximate smoking behavior change, but had quite different smoking belief change, which reveals that smoking behavior change was not congruous with smoking belief change in the sub-groups.

On ther other hand, it is inferred that immigrants of different category sub-groups could have different level of smoking acculturation, which contributed difference of smoking change, in particular, the disparity of smoking belief change.

7.2.2.2. Significance level

Though the results of significance analysis shows that there were no significant differences between the rates of different immigrant sub-groups in smoking, percent comparisons indicate substantial differences between some of the rates in smoking.

7.2.2.3. Multivariate analysis

The results of correlation analysis show that Smoking Change (Smoking Behavior Change + Smoking Belief Change) was correlated positively with Age and Duration of Residence in Canada and negatively with Gender and Category of Immigration, Smoking Behavior Change was correlated positively with Age and Duration of Residence in Canada and negatively with Gender and Mother Tongue. Age, Gender and Duration of Residence in Canada were correlated with both Smoking Behavior Change and Smoking Belief Change. Data of Statistics Canada disclose that the proportions of immigrants who were smokers generally increased with time in Canada [Chen 1996]. Category of Immigration was correlated with Smoking Belief Change, because it was correlated with Smoking Change instead of Smoking Behavior Change, which shows that the immigrants

of different category sub-groups had greater difference of smoking belief change. However, Mother Tongue was correlated with Smoking Behavior Change rather than Smoking Belief Change, as it was not correlated with Smoking Change (Smoking Behavior Change + Smoking Belief Change), which displays that the immigrants of different language sub-groups had greater difference of smoking behavior instead of smoking belief. A smoking survey reveals that cultural factors were principally related to smoking behavior [van Oort 2006].

Meanwhile, the results of regression analysis disclose that Age, Gender and Duration of Residence in Canada significantly impacted Smoking Change (Smoking Behavior Change + Smoking Belief Change). Moreover, Age and Gender significantly impacted Smoking Behavior Change, so they were main determinants of smoking change and smoking behavior change. Nevertheless, Duration of Residence significantly impacted Smoking Belief Change, it was a determinant of Smoking Belief Change, because it significantly impacted Smoking Change rather than Smoking Behavior Change, which exposes that smoking belief of immigrants experienced greater change with increase of time in Canada. Apparently, smoking behavior of immigrants could not happen change accordingly with smoking belief. Some of immigrants changed smoking behavior, but did not change smoking belief. They experienced smoking behavior change because of other factors instead of smoking belief change. Immigrants of different sub-groups could occur different smoking behavior change and smoking belief change. However, cultural and acculturated factors could be associated with more greatly smoking behavior and smoking behavior change of immigrants and less smoking belief and smoking belief

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change. Additionally, socio-economic and environmental factors could influence smoking behavior change and smoking belief change at different degrees.

7. 3. Alcohol Consumption Change

7.3.1. Results

The results of percentage, significance and multivariate (correlation and regression) analysis of the total sample and the sub-groups in drinking were presented respectively in Tables in Drinking (see appendix 5.3: page 409).

7.3.2. Analysis and discussion

The results show that the immigrants experienced drinking change. However, different gender, language and category sub-groups showed different changes in drinking behavoir and drinking belief. Some of the demographic factors were correlated with drinking change and/or significantly impacted the change.

7.3.2.1. Percentages in drinking

1. Total sample

The results in drinking show that the immigrants in Ottawa and Gatineau, Canada had higher Drinking Rate (50.25%), Drinking Rate Before Immigration (39.14%) and Drinking Rate After Immigration (43.21%). Most of the immigrants increased consumption of alcohol because their drinking rate after immigration was higher than drinking rate before immigration. It is worth noting that drinking belief change rate (37.41%) of the immigrants was higher than their drinking behavior change rate

(29.75%), which discloses that drinking belief change was not compatible with drinking belief change. It seems that drinking belief could has higher acculturation level than drinking behavior [Pedersen 2011]. Because of difference of the cultures, some of the immigrants could have higher acculturation level of drinking behavior, others could have higher acculturation level of drinking belief.

In the multicultural lifestyle change survey data, Drinking Rate (50.25%) and Drinking Rate (43.21%) After Immigration of the immigrants were greatly lower than Alcohol "Lifetime Use" Rate (91.0%) and Alcohol "Past 12 month Use" Rate (78.4%) of Canadian citizen (aged 15 or more) in Canadian Alcohol and Drug Use Monitoring Survey in 2012 [HC 2014]. Therefore, Drinking Rate After Immigration of the immigrants could be lower than Alcohol Use Rate of Canadian citizen. A study in Ontario shows that the prevalence of alcohol consumption and risk drinking was lower among foreign-born than Canadian-born respondents [Agic 2016].

It has been known that immigrant drinking and drinking change was associated with drinking acculturation [Caetano 1988, Pedersen 2011]. Drinking change was associated with acculturation. Acculturation was negatively associated with alcohol use [Parikh 2009, Szaflarski 2012]. Some of studies reveal that acculturation might drive drinking change, and higher acculturation was associated with a greater likelihood of high alcohol intake [Su 2002, Abraido-Lanza 2005]. Some of researchers indicate that the association between acculturation and alcohol use disorders did not appear to be linear and the effect of acculturation was not uniform on individuals' drinking behavior [Caetano 2008a].

2. Gender sub-groups

The statistical data reveal that different immigrant gender sub-groups had different rates in drinking. All of the rates (Drinking Rate, Drinking Rate Before Immigration, Drinking Rate After Immigration, Drinking Change Rate, Drinking Belief Change Rate) of the immigrant men were higher than those of the immigrant women. It appears that the immigrant men faced or encountered greater challenging and had greater psychological pressure after immigration, so they could have greater drinking change.

Drinking Rate (65.94%) and Drinking Rate (59.61%) After Immigration of the immigrant men in the multicultural lifestyle change survey were greatly lower than Alcohol "Lifetime Use" Rate (92.0%) and Alcohol "Past 12 month Use" Rate (82.7%) of Canadian male citizen (aged 15 or more), and Drinking Rate (34.34%) and Drinking Rate (26.94%) After Immigration of the immigrant women were greatly lower than Alcohol "Lifetime Use" Rate (89.3%) and Alcohol "Past 12 month Use" Rate (74.4%) of Canadian female citizen (aged 15 or more) in Canadian Alcohol and Drug Use Monitoring Survey in 2012 [HC 2014]. Therefore, Drinking Rates After Immigration of the immigrant men and women could be respectively lower than Alcohol Use rates of male and female Canadian citizen.

Some of studies show that acculturation has different effects on drinking for men and women [Caetano 2008a, Vaeth 2012]. A research finding discloses that acculturation effects on drinking outcomes were stronger for female immigrants than male immigrants [Mill 2012]. Similarly, acculturation had a direct effect on drinking status for women but not for men [Alaniz 1999]. Furthermore, acculturation had a more consistent association with increased drinking and binge drinking among women than among men [Vaeth 2012]. For example, higher acculturation was positively associated with a higher

probability of drinking among Latino immigrant women, and higher average volumes and more frequent drunkenness among Latino immigrant female drinkers, but acculturation was unrelated to alcohol use among Latino immigrant men [Zemore 2005]. Nevertheless, A study in the United States reveals that acculturation did not impact alcohol use prevalence among Vietnamese and Cambodian immigrant women in Washington State but that it did affect their drinking pattern [Kane 2016]. Therefore, the effect of acculturation was gender-specific in drinking [Vaeth 2012]. However, the results of the multicultural survey reveal that drinking change rate of immigrant men was higher than that of immigrant women, which did not support that immigrant women could have higher level of drinking acculturation.

3. Language sub-groups

The statistical data show that different immigrant language sub-groups had different rates in drinking. Amongst the three immigrant language sub-groups, French immigrants had the highest rates in Drinking, while English Immigrants had the lowermost Drinking Rate Before Immigration (30.94%) and Drinking Belief Change Rate (27.34%). However, Chinese immigrants had the lowermost Drinking Rate (42.80%), Drinking Rate After Immigration (35.99%) and Drinking Change Rate (23.49%). Obviously, French immigrants had the greatest drinking behavior change, followed by English immigrants, Chinese immigrants showed the least drinking behavior change. Drinking Rate of Chinese immigrants decreased after immigration, on the contrary, Drinking Rates of English and French immigrants increased after immigration.

Meanwhile, the results reveal that French immigrants had the highest Drinking Belief Change Rate (45.52%) or the greatest drinking belief change, while Chinese immigrants had lower Drinking Belief Change Rate (39.77%) or less drinking belief change. However, English immigrants had the lowermost Drinking Belief Change Rate (27.34%) or the least drinking belief change. Evidently, because of environmental change and acculturation, different cultural immigrants experienced different drinking belief change.

It is interesting to note that culture could be associated with drinking behavior and drinking action in the language sub-groups. Some of research findings show that alcohol use patterns and prevalence of alcohol–related problems varied among foreign-born immigrants by racial and ethnic backgrounds [Galvan 2003, Chartier 2010, Agic 2014]. For example, Iranian immigrants in Oslo, Norway reported a higher drinking frequency than Turkish and Pakistan immigrants [Amundsen 2012]. For other example, Chinese immigrant adolescents from mainland China in the United States were less likely to be drinkers than adolescents from the other two sub-cultures (Chinese adolescents from Hong Kong and American-burn Chinese adolescents) [Lo 2001].

It is worth noting that the original culture could impact drinking patterns of different ethnic groups or sub-groups [Caetano 1988], or the ethnic drinking culture might significantly influence alcohol use [Cook. 2012]. Asian immigrants in the United States had high rates of alcohol abstention and low rates of heavy alcohol use [Caetano 1988], but different subgroups of Asian-Americans varied substantially in their rates of drinking and heavy drinking [Caetano. 1998]. For instance, Southeast Asian immigrants in the United States appeared to be at high risk for heavy drinking [Makimoto 1998]. Meanwhile, number of drinking days of Latino immigrants in the United States declined

significantly post-immigration [de la Rosa 2013], but Hispanic subgroups had substantial differences in drinking patterns and alcohol-related problems [Caetano 1998]. For example, Mexican Americans reported drinking more often and greater quantities than Central Americans, and the proportion of "high" drinkers was higher among Mexican-Americans than among the Central Americans [Marin 1995]. Moreover, Mexican Americans exhibited more alcohol-related problems than did Cuban-Americans and Puerto Ricans [Caetano 1988], and Mexican American and Puerto Rican men had higher rates of alcohol abuse and dependence than Cuban American and South or Central American men [Caetano 2008b].

On the other hand, it seems that the immigrants of different language sub-groups had different level of drinking acculturation, which resulted in their different Drinking Rates After Immigration and different drinking change. Chinese immigrants had the least Drinking Rate After Immigration and greater drinking change, which appears that they could have lower level of drinking acculturation than English and French immigrants. A study reveals that the greater levels of past drinking were associated with more acculturation into the mainstream society of the United States for the Hispanic veterans [Verney 2007]. Other study exhibits that the acculturated South Asians of the first generation in the United States were at an increased risk of binge drinking [Becerra 2013]. However, Latino young immigrants with no prior history of alcohol consumption remained largely unaffected by the acculturation-related variables, but young immigrants with a previous history of alcohol consumption experienced greater likelihood of binge drinking with influence of the acculturation-related variables [Guilamo-Ramos 2004].

Meanwhile, language preference and English language proficiency may exhibit different drinking impacting effects on different linguistic or ethnic immigrant sub-groups. For example, Spanish-speaking Hispanics in the United States were significantly less likely to binge drink than English-speaking Hispanics [DuBard 2008]. Moreover, in the United States, English-speaking immigrants from the United Kingdom had higher rates of past month alcool use (67.5%), past month binge (31.3%), and past month heavy drinking (12.2%) when compared with German-speaking immigrants from Germany and Polish-speaking immigrants from Poland, whose past month alcohol uses were significantly lower (49.3% and 55.9%), as were their rates for binge drinking (17.3% and 23.8%) and heavy drinking (5.3% and 4.4%) [Loue 2012].

4. Category sub-groups

The study results expose that different immigrant category sub-groups had different rates in drinking. Among the four immigrant category sub-groups, Principal Applicant immigrants had the highest Drinking Rate (63.21%), Drinking Rate Before Immigration (55.96%) and Drinking Rate After Immigration (55.96%), while Spouse and Dependent immigrants had the lowermost rates in Drinking. It has been known that Drinking Rate (61.43%), Drinking Rate Before Immigration (42.86%) and Drinking Rate After Immigration (47.14%) of Other (Refugee) immigrants were lower than those of Principal Applicant immigrants, but higher than those of Family Class immigrants and Spouse and Dependent immigrants. Drinking Rate (47.18%), Drinking Rate Before Immigration (35.88%) and Drinking Rate After Immigration (40.11%) of Family Class immigrants were higher than those of Spouse and Dependent immigrants.

However, the results reveal that Other (Refugee) immigrants had the highest Drinking Change Rate (37.14%) or the greatest drinking change, while Principal Applicant immigrants had higher Drinking Change Rate (32.12%) or greater drinking change. Drinking Change Rate (29.94%) of Family Class immigrants was lower than that of Other (Refugee) immigrants and Principal Applicant immigrants, but higher than that of Spouse and Dependent immigrants. It is apparent that Spouse and Dependent immigrants had the lowermost Drinking Change Rate (22.80%) or the least drinking change. However, except Drinking Rate of Principal Applicant immigrants, Drinking Rates of immigrants of other three sub-groups increased after immigration.

Meanwhile, the results of this multicultural survey expose that Principal Applicant immigrants had the highest Drinking Belief Change Rate (41.97%), while Other (Refugee) immigrants had slightly lower Drinking Belief Change Rate (40.00%). Drinking Belief Change Rate (36.16%) of Family Class immigrants was lower than that of Principal Applicant immigrants and Other (Refugee) immigrants, but higher than that (24.20%) of Spouse and Dependent immigrants. Obviously, immigrant category sub-group of the largest drinking belief change was Principal Applicant immigrants, followed by Other (Refugee) immigrants, the third one and least one were respectively Family Class immigrants and Spouse and Dependent immigrants. It seems that Principal Applicant immigrants could be impacted more easily by foreign culture or Canadian multiculture, and had higher drinking acculturation. They had higher drinking belief change. On the contrary, more Family Class immigrants and Spouse and Dependent immigrants kept their original drinking belief. However, it is unclear that Other (Refugee) immigrants had higher drinking belief change rate and greater drinking belief change.

It is inferred that immigrants of different category sub-groups could have different level of drinking acculturation, which contributed the disparity of drinking change.

7.3.2.2. Significance level

Though significance analysis shows that there were no significant differences between the rates of different sub-groups in drinking, percent comparisons percent comparisons indicate substantial differences between some of the rates.

7.3.2.3. Multivariate analysis

The results of correlation analysis show that Drinking Change (Drinking Behavior Change + Drinking Belief Change) was positively correlated with Mother Tongue and negatively correlated with Gender, and Drinking Behavior Change was negatively correlated with Gender and Category of Immigration. Gender was correlated with both Drinking Behavior Change and Drinking Belief Change. Category of Immigration was only correlated with Drinking Behavior Change instead of Drinking Belief Change. Mother Tongue was correlated with Drinking Belief Change, because it was not correlated with Drinking Behavior Change, which reveals that the cultural difference could be correlated with the disparities of drinking belief and drinking belief change.

Meanwhile, the results of regression analysis disclose that Mother Tongue and Gender significantly impacted Drinking Change, and Gender significantly influenced Drinking Behavior Change. Gender significantly affected both Drinking Behavior Change and Drinking Belief Change, so it was a main determinant of Drinking Change. A research finding reveals that gender was an important determinant of frequency, total

number of drinks and volume of drinking [Marin 1995]. Mother Tongue significantly impacted Drinking Belief Change, as it did not significantly influenced Drinking Behavior Change, so it was a determinant of Drinking Belief Change.

Apparently, drinking behavior of immigrants could not happen change accordingly with their drinking belief. Some of immigrants changed drinking behavior, but did not change drinking belief. They experienced drinking behavior change because of other factors instead of drinking belief change. On the contrary, drinking belief change of some of immigrants could not bring directly the same drinking behavior change. Immigrants of different sub-groups could experience different belief changes because of difference of acceptability of new drinking belief. The difference of culture and drinking acculturation could lead to the disparities of drinking behavior and belief changes of the immigrants.

7. 4. Mood Change

7.4.1. Results

The results of percentages, significance and multivariate (correlation and regression) analysis of the total sample and the sub-groups in mood change were presented respectively in Tables in Mood Change (see appendix 5.4: page 412).

7.4.2. Analysis and discussion

The results show that the immigrants experienced mood change. However, different gender, language and category sub-groups showed different changes in mood status and mood belief. Some of the demographic factors were correlated with mood change and/or significantly impacted the change.

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7.4.2.1. Percentages in mood change

1. Total sample

The calculated results of percentages in mood change show that over two thirds of the immigrants (76.05%) exhibited mood status change. However, less than half of them exposed mood status improvement or mood status decline, with the proportion reporting that their mood status improved (41.98%) greater than the proportion indicating decline in their mood status (34.07%), suggesting that immigrants were more likely to experience a positive mood status change after arrival. A meta-analysis discloses that there was no conclusive evidence for a large increase in the risk of mood disorders among immigrants and only mild increase in risk of mood disorders associated with immigration [Swinne 2007]. Similarly, a survey shows that risk for mood and anxiety disorders was lower relative to the US-born persons among immigrants from Mexico, Eastern Europe, and Africa or the Caribbean [Breslau 2009]. Furthermore, other survey reveals that Immigrants arriving 10 or more years ago had a reduced odds of anxiety disorders compared with native-born Canadians [Aglipay 2013]. Meanwhile, it is interesting to note that Mood Status Change Rate (76.05%) of the immigrants was higher over one time than their Mood Belief Change Rate (37.90%), which indicates that while many immigrants changed their mood status, they did not change their mood belief. Mood Status Change did not coordinate or synchronize with Mood Belief Change. A study in Europe discloses that mood status of immigrants did not coordinate completely with their mood belief [Segura 2012].

It seems that immigrant mood change could be associated with acculturation. For individuals with a separate distinct culture, acculturation can be a source of stress or anxiety in a society that is strongly influenced by a mainstream culture [Oetting 1991, Ramos 2005]. Acculturation could be an impacting factor on mood change of immigrants, because it can greatly affect psychological functioning and entail adjustments in person-environment fit for responding to new sociocultural conditions [Ramos 2005]. A study of South Asian immigrants in America reveals that acculturation and racial identity accounted for variance in depressed or anxious mood [Govardhan 2008]. Similarly, a study of immigrants from the former Soviet Union in the United States shows that higher acculturation levels were associated with lower personal stress and anxiety [Miller 2006], and a research finding of Turkish immigrants in the Netherlands discloses that the participation in Dutch culture was associated with a decrease of depressive and anxious mood [Ince 2014].

2. Gender sub-groups

The results reveal that different immigrant gender sub-groups had different rates in mood change. However, all of the rates (Mood Status Change Rate, Mood Status Improving Rate, Mood Status Declining Rate and Mood Belief Change Rate) of the immigrant women were higher than those of the immigrant men. It appears that the immigrant women could be influenced by new social environmental factors and have higher mood acculturation than the immigrant men. Difference of mood acculturation level of the immigrant men and women could lead to the disparity in mood change.

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3. Language sub-groups

The results uncover that different immigrant language sub-groups had different rates in mood change. Amongst the three immigrant language sub-groups, Chinese immigrants had the highest Mood Status Change Rate (80.30%) and Mood Status Improving Rate (55.68%), while English immigrants had lower Mood Status Change Rate (79.50%) and Mood Status Improving Rate (42.09%), and French immigrants had the lowermost Mood Status Change Rate (68.28%) and Mood Status Improving Rate (28.36%). On the contrary, French immigrants had the highest Mood Status Declining Rate (39.93%), while English immigrants had lower Mood Status Declining Rate (37.41%), and Chinese immigrants had the lowermost Mood Status Declining Rate (24.62%). In other words, the greatest Mood Change was amongst Chinese immigrants, with the second greatest change observed amongst English immigrants. Mood Status Improving Rate of Chinese and English immigrants were higher than their Mood Status Declining Rate, which shows that most Chinese and English immigrants improved their mood. However, Mood Status Improving Rate of French immigrants were lower than their Mood Status Declining Rate, indicating that French immigrants experienced a decline in their mood. Most likely, the greater mood status change amongst Chinese immigrants could be because of the greater cultural and environmental difference between their native country and the host country.

Furthermore, French immigrants exhibited the highest Mood Belief Change Rate (48.88%), while Chinese immigrants had higher Mood Belief Change Rate (46.97%), and English immigrants exposed the lowermost Mood Belief Change Rate (18.71%). That is, the greatest mood belief change was amongst French immigrants, with Chinese

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immigrants having the second greastest mood belief change. It is unclear why French immigrants had the greatest mood belief change.

It is inferred that difference of acculturation level of English, French and Chinese immigrants could contribute to the disparities in their mood change.

4. Category sub-groups

The results display that different immigrant category sub-groups had different rates in mood change. Amongst the four sub-groups, Family Class immigrants had the highest Mood Change Rate (79.38%), Mood Improving Rate (44.92%), and Mood Declining Rate (34.46%), while Other (Refugee) immigrants had the lowermost Mood Change Rate (60.00%), Mood Improving Rate (28.57%) and Mood Declining Rate (24.29%). It has been known that Mood Change Rate (74.61%), Mood Improving Rate (41.45%), and Mood Declining Rate (33.16%) of Principal Applicant immigrants were lower than those of Family Class immigrants and Spouse and Dependent immigrants, but higher than those of Other (Refugee) immigrants. However, Mood Change Rate (77.20%), Mood Improving Rate (43.52%), and Mood Declining Rate (33.68%) of Spouse and Dependent immigrants were lower than those of Family Class immigrants. Therefore, the sub-group of the greatest mood change was Family Class immigrants, the second one was Spouse and Dependent immigrants, the third one was Principal Applicant immigrants, and the fourth one was Other (Refugee) immigrants.

On the other hand, Principal Applicant immigrants had the greatest Mood Belief Change Rate (41.45%), while Other (Refugee) immigrants and Spouse and Dependent immigrants had lower Mood Belief Change Rates (38.57% and 37.31%), and Family

Class immigrants had the lowermost Mood Belief Change Rate (36.16%). For this reason, the category sub-group of the greatest mood belief change was Principal Applicant immigrants, the second one was Other (Refugee) immigrants, and the third one and the least one were respectively Spouse and Dependent immigrants and Family Class immigrants. It seems that Principal Applicant immigrants could be influenced more easily by multiculture and have higher level of acculturation, with a concomitant greater mood belief change. In contrast, there could be lower level of acculturation and less belief change amongst Family Class immigrants and Spouse and Dependent immigrants.

It appears that immigrants of different category sub-groups could have different level of mood acculturation, which contributed the disparities of their mood change.

7.4.2.2. Significance level

Though significance analysis shows that there were no significant differences between the rates of different immigrant sub-groups in mood change, percent comparisons indicate substantial differences between some of the rates in mood change.

7.4.2.3. Multivariate analysis

The results of correlation analysis show that Mood Change (Mood Status Change + Mood Belief Change) was correlated positively with Mother Tongue and negatively with Speaking Languages, and Mood Status Change was negatively correlated with Marital Status and Highest Level of Education. Marital Status and Highest Level of Education were mainly correlated with Mood Status Change of the immigrants. Yet, Mother Tongue and Speaking Languages were principally correlated with Mood Belief Change, because

they were not correlated with Mood Status Change. Therefore, the cultural difference could be correlated with the disparities of mood and mood change of immigrants.

Furthermore, the results of regression analysis indicate that Mother Tongue, Speaking Languages and Highest Level of Education significantly impacted Mood Change (Mood Status Change + Mood Belief Change), and Marital Status and Highest Level of Education significantly impacted Mood Status Change. Highest Level of Education significantly influenced both Mood Status Change and Mood Belief Change. Marital Status only significantly affected Mood Status Change rather than Mood Belief Change. Mother Tongue and Speaking Languages significantly impacted Mood Belief Change, because they significantly impacted Mood Change instead of Mood Status Change.

Mood Belief Change could influence Mood Status Change. The immigrants of different linguistic sub-groups could experience different mood changes because of the disparity of acceptability of new mood belief. However, Mood Belief Change of the immigrants could not undergo change accordingly with Mood Status Change. Some of the immigrants could experience Mood Status Change because of affection of other factors instead of Mood Belief Change. Therefore, the cultural and acculturated differences could lead to the disparities of mood change (in particular, mood belief change) of different immigrant sub-groups.

7. 5. Sleep Change

7.5.1. Results

The results of percentage, significance and multivariate (correlation and regression) analysis of the total sample and the sub-groups in sleep change were presented respectively in Tables in Sleep Change (see appendix 5.5: page 414).

7.5.2. Analysis and discussion

The results show that the immigrants experienced sleep change. However, different gender, language and category sub-groups showed different changes in sleep time, sleep quality and sleep belief. Some of the demographic factors were correlated with sleep change and/or significantly impacted the change.

7.5.2.1. Percentages in sleep change

1. Total sample

The computed results of percentages in sleep change show that most of the immigrants changed their sleep behavior after immigration, but their sleep belief had greater change. Some of the immigrants changed sleep behavior, but did not change sleep belief. About half of them increased or decreased sleep time and improved or declined sleep quality. Obviously, sleep of immigrants could be impacted by various factors. Data of American Academy of Sleep Medicine show that sleep times were influenced by race, ethnicity and country of origin [Heffron 2012], and the integration of immigrants into a new culture was related to poor sleep quality [Voss 2008]. Meanwhile, many of the studies in sleep reveal that immigrant sleep was associated with acculturation [Hale 2011, Seicean 2011, Suh 2013, Hale 2014]. However, there were a little data to report how acculturation impacts immigrant sleep, in particular sleep of different immigrant sub-groups.

2. Gender sub-groups

The results expose that different gender sub-groups had different sleep change. Sleep Time Change Rate (57.66%), Sleep Time Increasing Rate (32.60%), Sleep Quality Improving rate (37.23%) of the immigrant men were higher than those (53.13%, 22.81% and 34.09%) of the immigrant women, but their Sleep Time Decreasing Rate (25.79%), Sleep Quality Change Rate (68.86%) and Sleep Quality Declining Rate (31.63%) were lower than those (30.33%, 74.19% and 34.09%) of the immigrant women. Hence, the immigrant men had greater sleep time and quality changes, longer sleep time and higher sleep quality than the immigrant women. A study in Germany shows that sleep quality of Portuguese immigrants was known to be poorer in women than in men [Voss 2008]. Similarly, a study in the United Sates exhibits that the female immigrants from Korea had more sleep insufficiency and interruption than the male immigrants [Sok 2007].

It has been known that Sleep Belief Change Rate (54.89%) of the immigrant women was higher than that (49.88%) of the immigrant men, which seems that they could be impacted more easily by new cultures, and have higher level of sleep acculturation.

3. Language sub-groups

The results disclose that different language sub-groups showed different sleep change. English immigrants had the highest Sleep Time Increasing Rate (32.37%), and the lowermost Sleep Belief Change Rate (35.97%), while French immigrants had the highest Sleep Time Change Rate (61.19%), Sleep Time Decreasing Rate (40.67%) and Sleep Quality Declining Rate (46.64%), and the lowermost Sleep Time Increasing Rate

(20.52%), Sleep Quality Change Rate (70.90%) and Sleep Quality Improving Rate (24.25%). However, Chinese immigrants had the highest Sleep Quality Change Rate (71.97%), Sleep Quality Improving Rate (46.97%) and Sleep Belief Change Rate (66.29%), and the lowermost Sleep Time Change Rate (43.56%), Sleep Time Decreasing Rate (14.02%) and Sleep Quality Declining Rate (25.00%). Hence, French immigrants had the greatest sleep time change and the shortest sleep time, while English immigrants had the greatest increase of sleep time. Nevertheless, Chinese immigrants had the least decrease of sleep time. A study in the United States shows that African, Caribbean and non-Hispanic white immigrants existed difference in sleep duration [Ertel 2011]. Data of American Academy of Sleep Medicine exhibit that African-born (French speaking) immigrants were more likely to report sleeping six hours or less [Heffron 2012], which was similar to the research finding for French immigrants in the Multicultural Lifestyle Change Survey.

It is interesting to note that Chinese immigrants had the greatest sleep quality change and sleep quality improvement, while French immigrants had the least sleep quality change and sleep quality improvement.

It is worth being mentioned that the disparity of different language sub-groups in sleep change could be associated with acculturation, as language is widely recognized as a dominant factor in the assessment of acculturation level [Cuellar 1995, Ramos 2005]. For instance, a study of female immigrants in the United States discloses that women with higher levels of language acculturation had greater odds of reporting any sleep complaint compared to those with less language acculturation, and that significant mediation effects of acculturation were only found for Hispanic/Latina and Japanese

women, but not for Chinese women [Hale 2014]. Meanwhile, other study in the United States reveals that Mexico-born immigrants increased acculturation correlated to an increased risk of poor sleep compared to America-burn Mexicans [Seicean 2011]. Additionally, highly acculturated Hispanic men in the United States had significantly more prevalence of poor sleep quality compared to Non-Hispanic Whites [Soler 2013].

It has been known that Chinese immigrants had the greatest sleep belief change, which could be due to cause of greater cultural difference between the original country and the host country. Nevertheless, English immigrants had the least sleep belief change, which could be owing to reason of cultural similarity between the native countries and the host country.

It is deduced that the difference of acculturation level of English, French and Chinese immigrants could contribute the disparities in their sleep change. For example, Chinese immigrants had greater sleep change, which could be due to their higher level of sleep acculturation as compared to English and French immigrants.

4. Category sub-groups

The results display that different category sub-groups also showed different sleep change. Principal Applicant immigrants had the highest Sleep Time Increasing Rate (34.72%), Sleep Quality Improving Rate (37.82%), Sleep Belief Change Rate (55.44%), and the lowermost Sleep Quality Declining Rate (31.61%). Spouse and Dependent immigrants had the lowermost Sleep Time Change Rate (45.60%), Sleep Time Decreasing Rate (19.17%) and Sleep Quality Change Rate (65.80%). Other (Refugee) immigrants had the highest Sleep Time Change Rate (61.43%), Sleep Time Decreasing

Rate (42.86%), Sleep Quality Change Rate (75.71%), Sleep Quality Declining Rate (47.14%), and the lowermost Sleep Time Increasing Rate (18.57%), Sleep Quality Improving Rate (28.57%) and Sleep Belief Change Rate (44.29%).

Consequently, Principal Applicant immigrants had the greatest Sleep Time Increase and Sleep Quality Improvement, while Spouse and Dependent immigrants had the least Sleep Time Change, Sleep Time Decrease and Sleep Quality Change. Family Class immigrants had greater Sleep Time Change and Sleep Time Decrease than Principal Applicant immigrants and Spouse and Dependent immigrants, and greater Sleep Quality Change, Sleep Quality Improvement and Sleep Quality Decline than Spouse and Dependent immigrants and Other (Refugee) immigrants. However, Other (Refugee) immigrants had the greatest Sleep Time Change, Sleep Time Decrease, Sleep Quality Change and Sleep Quality Decline.

It has been known that Principal Applicant immigrants had the greatest sleep belief change, which seems that they could be affected by Canadian multiculture more easily than other sub-groups, or have the highest level of acculturation. Spouse and Dependent immigrants and Family Class immigrants had similar sleep belief change, which appears that they could have resembling sleep acculturation level. Yet, Other (Refugee) immigrants had the lowermost sleep belief change rate, which seems that they could hold steady original sleep belief and/or have lower sleep belief acculturation.

It is inferred that the immigrants of different category sub-groups could have different level of sleep acculturation, which contributed the disparities in their sleep change.

7.5.2.2. Significance level

Though significance analysis shows that there were no significant differences between the rates of different immigrant sub-groups in sleep change, percent comparisons indicate substantial differences between some of the rates in sleep change.

7.5.2.3. Multivariate analysis

The results of correlation analysis show that Sleep Change (Sleep Behavior Change + Sleep Belief Change) and Sleep Behavior Change were correlated negatively with Mother Tongue and positively with Age and Primary Occupation. Hence, Mother Tongue, Age, Primary Occupation were correlated with Sleep Behavior and Belief Changes. The cultural difference could be associated with the disparity of Sleep Change.

Furthermore, the results of regression analysis indicate that Mother Tongue, Age and Primary Occupation significantly impacted Sleep Change (Sleep Behavior Change + Sleep Belief Change), and Gender, Age and Primary Occupation significantly impacted Sleep Behavior Change. On that account, Age and Primary Occupation significantly impacted both Sleep Behavior and Belief Changes, so they were determinants of the two changes. Gender significantly impacted Sleep Behavior Change and is a determinant of the change. Mother Tongue significantly impacted Sleep Belief Change and a determinant of the change, as it significantly impacted Sleep Change, but did not significantly impacted Sleep Behavior Change. The immigrants of different language sub-groups significantly differed in Sleep Belief Change. The cultural difference could lead to the disparity of sleep belief and/or sleep belief change.

7. 6. Physical Activity Change

7.6.1. Results

The results of percentage, significance, multivariate (correlation and regression) and factor analysis of the total sample and the sub-groups in physical activity change were presented respectively in Tables and Figures in Physical Activity Change (see appendix 5.6: page 416).

7.6.2. Analysis and discussion

The results show that the immigrants experienced physical activity change. However, different gender, language and category sub-groups showed different changes in Physical Exercise Time, Physical Activity Level, Physical Exercise Items and Physical Exercise Belief. Some of the demographic factors were correlated with physical activity change and/or significantly impacted the change.

7.6.2.1. Percentages in physical activity change

1. Total sample

The calculated results of percentages in physical activity change show that the majority of the immigrants changed physical exercise time, physical activity level and physical exercise item number. Most of the immigrants increased their exercise time and item number. However, their physical activity level decreased slightly. Over 50% of the immigrants changed physical exercise belief. A study reveals that immigrants and refugees to the United States exhibited relatively low level of physical activity [Wieland 2013]. Similarly, a Health Report of Statistics Canada shows that immigrants were less likely to be at least moderately active in their leisure time than Canadian citizens [SC

2013b]. Furthermore, an Australian National Health Survey reveals that immigrants from South East Asia, Other Oceania, the Middle East, Southern and Eastern Europe are at a significantly higher risk of being physically inactive compared with the native-born Australians, but immigrants from New Zealand, UK, Ireland and some of African countries are at a significantly lower risk of being physically inactive compared with the Australian born population [Dassanayake 2014]. However, a Canadian HBSC Study discloses that physical activity of young immigrants increased with augmenting duration of residence [Kukaswadia 2014].

The results of physical activity change of the immigrants in Ottawa and Gatineau supports the theory of physical activity acculturation. That is, as immigrants lived longer in a country, their physical activity behaviors and physical exercise belief were more closely approximate those of the host country. Evidence shows that culture and acculturation could be associated with leisure time physical activity [Gerber 2012]. For example, in Latin immigrants in the United States, higher acculturation was associated with a greater likelihood of recent exercise, and acculturation was positively associated with physical activity in leisure-time [Crespo 2001, Abraido-Lanza 2005, Pérez-Escamilla 2007, Ham 2007]. Similarly, a study of Asian-Pacific immigrants displays that physical activity increased significantly in intervention group of acculturation [Novotny 2012]. However, other findings of Latin immigrants in the United States exhibit that acculturation did not significantly influence exercise, decreases in physical activity were due to environmental and social barriers [Mainous 2008, Colby 2009], and low acculturated immigrants reported lower leisure-time activity than high acculturated immigrants [Wolin 2006]. Analogously, a study in the Netherlands shows that

acculturation did not necessarily lead to increased physical activity during leisure time among Turkish immigrants [Hosper 2007]. Moreover, some of findings in the United States reveal that acculturation was significantly associated with a lower frequency of physical activity among Asian and Hispanic immigrants [Unger 2004, Berrigan 2006].

2. Gender sub-groups

The results exhibit that different gender sub-groups had approximate rates in physical activity change, which was similar to evidence of Canadian Community Health Survey which the immigrant men and women had resembling patterns of physical activity [Trembley 2006]. However, Physical Exercise Time Decreasing Rate, Exercise Item Number Change Rate, Physical Exercise Item Number Increasing Rate, Physical Exercise Item Number Decreasing Rate and Physical Exercise Belief Change Rate of the immigrant men were higher than those of the immigrant women. On the contrary, Physical Exercise Time Change Rate, Physical Exercise Time Increasing Rate, Physical Activity Level Change Rate, Physical Activity Level Increasing Rate and Physical Activity Level Decreasing Rate of the immigrant women were higher than those of the immigrant men. The immigrant women had greater Physical Exercise Time Change, increase of Physical Exercise Time, Physical Activity Level Change and decrease of Physical Activity Level than the immigrant men. Yet, the immigrant men had greater Physical Exercise Item Number Change, increase of Physical Exercise Item Number than the immigrant women, which seems that the immigrant men could be impacted by multiculture more easily than the immigrant women. The Health Fact Sheets disclose that Canadian men were more likely to be moderately active than women [SC 2013c].

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Similarly, a survey in Australia shows that there was a greater prevalence of physical inactivity among female immigrants than male immigrants [Dassanayake 2014].

3. Language sub-groups

The results disclose that different language sub-groups had different rates in physical activity change. English immigrants had the highest Exercise Item Number Change Rate, while French immigrants exhibited the highest Physical Exercise Time Decreasing Rate, Physical Activity Level Decreasing Rate, and the lowermost Physical Exercise Time Change Rate, Physical Exercise Time Increasing Rate, Physical Activity Level Change Rate, Physical Activity Level Increasing Rate, Exercise Item Number Change Rate, Physical Exercise Item Number Increasing Rate. However, Chinese immigrants had the highest Physical Exercise Time Change Rate, Physical Exercise Time Increasing Rate, Physical Activity Level Change Rate, Physical Activity Level Increasing Rate, Physical Exercise Item Number Increasing Rate, Physical Exercise Belief Change Rate, and the lowermost Physical Exercise Time Decreasing Rate, Physical Activity Level Decreasing Rate, Physical Exercise Item Number Decreasing Rate.

It has been known that Chinese immigrants showed the longest Physical Exercise Time and the highest Physical Activity Level, while French immigrants exposed the shortest Physical Exercise Time and the lowermost Physical Activity Level. English immigrants had the greatest Physical Exercise Item Number Change, while Chinese immigrants had the most increase and the least decrease of Physical Exercise Item Number. However, French immigrants had the least increase and the most decrease of Physical Exercise Item Number. A study in Canada reveals that physical activity of

young immigrants differed by ethnicity, and East and South East Asian youth have reduced physical activity levels since immigration [Kukaswadia 2014].

Meanwhile, the results display that Chinese immigrants had the greatest physical exercise belief change, which seems to be due to the larger cultural and traditional disparity between the original country and the host country. On the contrary, French immigrants had the least physical exercise belief change, which appears that they maintained more solidly their original tradition and belief. A public health study in Vancouver, Canada reveals that physical activity of Chinese immigrants was influenced by culturally specific beliefs concerning appropriateness of physical exercise and importance of maintaining harmonious familial relationships [Taylor 2008]. Similarly, other health study in Vancouver, Canada discloses that Chinese immigrant women were interested in learning more about "Canadian activities" to improve fitness, decrease stress and social isolation, and to be good role models for their children [Frisby 2010].

It is interesting to note that language acculturation was positively associated with leisure-time activity and/or occupational activity [Crespo 2001, Evenson 2004]. For instance, Latin immigrants with low language acculturation in the United States were less likely to engage in physical activity than those with moderate to high acculturation [Crespo 2001]. Meanwhile, Latin immigrant women with higher English language acculturation were more likely to be physically active than those with lower English language acculturation [Evenson 2004], and the disparities in activity patterns existed by level of language acculturation among Hispanic immigrant women [Slattery 2006]. Moreover, language preference and English language proficiency may exhibit different impacting effects of physical activity on different linguistic or ethnic immigrant sub-

groups. For example, in the United states, physical activity was significantly lower among Spanish-speaking Hispanics than among English-speaking Hispanics [DuBard 2008, Ghaddar 2010]. For other example, in Australia, immigrants born in non-English speaking countries had a lower physical activity participation rate (51.4%) than those born in main English-speaking countries (70.7%) [ABS 2006].

4. Category sub-groups

The results reveal that different category sub-groups had different rates in physical activity change. It has been observed that Principal Applicant immigrants had the highest Physical Exercise Time Increasing Rate, Physical Activity Level Increasing Rate, Exercise Item Number Change Rate and Physical Exercise Belief Change Rate, and the lowermost Physical Exercise Time Decreasing Rate and Physical Activity Level Decreasing Rate, while Spouse and Dependent immigrants had the lowermost Physical Activity Level Change Rate and Physical Exercise Item Number Decreasing Rate. Nevertheless, Family Class immigrants had the highest Physical Exercise Time Change Rate, Physical Exercise Time Decreasing Rate and Physical Activity Level Change Rate. It has been noted that Other (Refugee) immigrants had the highest Physical Activity Level Decreasing Rate, Physical Exercise Item Number Decreasing Rate, and the lowermost Physical Exercise Time Change Rate, Physical Exercise Time Increasing Rate, Physical Activity Level Increasing Rate, Exercise Item Number Change Rate, Physical Exercise Item Number Increasing Rate and Physical Exercise Belief Change Rate.

It has been known that Family Class immigrants had the greatest Physical Exercise Time Change, Physical Activity Level Change and decrease of Physical Exercise Time,

while Principal Applicant immigrants had the greatest increase of Physical Exercise Time and Physical Activity Level, the greatest Physical Exercise Item Number Change and the greatest increase of Physical Exercise Item Number. Yet, Other (Refugee) immigrants had the least increase of Physical Exercise Time and Physical Activity Level, the greatest decrease of Physical Activity Level, the least increase and the greatest decrease of Physical Exercise Item Number.

On the other hand, Principal Applicant immigrants had the greatest physical exercise belief change, which seems that they could be influenced by new culture and tradition and changed their belief more easily than other sub-groups, while Other (Refugee) immigrants could maintained their own custom and belief.

5. Physical exercise item rates after immigration

(1). Total sample

The results exhibit that main physical exercise item of the Canadian immigrants after immigration was Walking, followed by Fitness Exercises, which was the same as Canadian citizens, because Canadians' most popular leisure-time physical activity was walking, followed by home exercises and weight training [SC 2013c]. It has been known that 71.1% of Canadians reported Walking during leisure time [SC 2013c], which was higher than Walking rate (67.04%) of the immigrants in Ottawa and Gatineau. However, 34.4% of Canadians reported Home Exercises during leisure time [SC 2013c], which was lower than Fitness Exercises (50.00%) of the immigrants in the two cities. Meanwhile, Health Reports of Statistics Canada disclose which immigrants were less likely to be physically active in their usual daily activities, but some of them spent at least six hours a

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week walking or bicycling as a means of transportation [SC 2013c]. Similarly, a Community Health Survey in Canada reveals that recent immigrants were more likely to have lower likelihood of walking [Dogra 2010].

Though Swimming and Biking rates of Canadians were higher than those of the immigrants in Ottawa and Gatineau [SC 2013c], but Jogging, Basket Ball, Soccer, Skating, Hockey and Tennis rates of Canadian citizens were lower than those of the immigrants [SC 2013c]. It seems that preferring physical exercise items of immigrants could be different with those of Canadians. The results of Physical Exercise Item Rates After Immigration did not support strongly "immigrants were less likely to be physically active". Similarly, the Canadian Community Health Survey data in 2000-2005 reveal that immigrants tended to participate in conventional forms of exercise compared to non-immigrants and were less likely to engage in endurance exercise, recreation activities and sports [Dogra 2010].

It appears that some physical exercise item could be associated with acculturation. For instance, a study in the United States discloses that Latin immigrant walking during most of the day decreased from 82.8 % to 65.6% as acculturation increased [Berrigan 2006].

(2). Language sub-groups

The results show that English immigrants had the highest Skiing, Skating, Basket Ball, Hockey, Tennis, Badminton and Swimming rates, and the lowermost Walking, Jogging/Running and Other rates. However, French immigrants had the highest Biking, Soccer and Other rates, and the lowermost Hiking, Skiing, Table Tennis, Badminton, Swimming, Yoga, TaiJi/QiGon and Fitness Exercises rates. It is interesting to note that

Chinese immigrants had the highest Walking, Jogging/Running, Hiking, Table Tennis, Yoga, TaiJi/QiGon and Fitness Exercises rates, and the lowermost Biking, Skating, Soccer, Basket Ball, Hockey and Tennis rates. A physical exercise study in Ontario, Canada shows that 89% of Chinese immigrants reported Walking [Garcia 2011].

It has been known that main physical exercise items of English immigrants were Walking, Fitness Exercises, Jogging/Running, Swimming, Basket Ball and Soccer, while main items of French immigrants were Walking, Fitness Exercises, Jogging/Running, Soccer, Basket Ball and Biking, but main items of Chinese immigrants were Walking, Jogging/Running, Fitness Exercises, Table Tennis, Hiking and Badminton. Consequently, different language sub-groups exhibited different rates in each physical exercise item and different physical exercise items and slightly different main exercise items, which could be due to the disparities of their culture and physical activity acculturation.

7.6.2.2. Significance level

Though significance analysis shows that there were no significant differences between the rates of different immigrant sub-groups in physical activity change, percent comparisons indicate substantial differences between some of the rates.

7.6.2.3. Multivariate analysis

The results of correlation analysis show that Physical Activity Change (Physical Activity Behavior Change + Physical Exercise Belief Change) was negatively correlated with Gender, Category of Immigration, Employment Status and Primary Occupation, and Physical Activity Behavior Change was negatively correlated with Age, Gender,

Category of Immigration, Employment Status and Primary Occupation. Obviously, Gender, Category of Immigration, Employment Status and Primary Occupation were correlated with both Physical Activity Behavior Change and Physical Exercise Belief Change. However, Age was correlated with Physical Activity Behavior Change instead of Physical Activity Belief Change.

Furthermore, the results of regression analysis indicate that Age, Gender, Category of Immigration and Employment Status significantly impacted Physical Activity Change, and Mother Tongue, Age, Gender, Category of Immigration and Employment Status significant impacted Physical Activity Behavior Change. Obviously, Age, Gender, Category of Immigration, Employment Status significantly impacted both Physical Activity Behavior Change and Physical Exercise Belief Change. Nevertheless, Mother Tongue significantly influenced Physical Activity Behavior Change rather than Physical Exercise Belief Change. Therefore, the immigrants of different language sub-groups exhibited the disparity of Physical Activity Behavior Change and the similarity of Physical Exercise Belief Change. The cultural difference could lead to the disparities of physical activity behavior change of the sub-groups.

7.6.2.4. Factor analysis

The results of factor analysis that were respectively performed two independent variables (Mother Tongue and Category of Immigration) and four dependent variables (Physical Exercise Time, Physical Activity Level, Physical Exercise Item Number and Physical Exercise Belief Change) show the same results that Physical Activity Change contained two factors, because the line of the third factor on scree plot was almost flat.

Factor one (Physical Activity Behavior Change Factor) comprised three variables (Physical Exercise Time Change, Physical Activity Level Change and Physical Exercise Item Number Change). Factor two (Physical Exercise Belief Change Factor) contained one variable (Physical Exercise Belief Change). Two factors impacted significantly Physical Activity Change, but factor one had more strong influencing effect on Physical Activity Change that factor two.

7. 7. Dietary Change

7.7.1. Results

The results of percentage, significance, multivariate (correlation and regression) and factor analysis of the total sample and the sub-groups in dietary change were presented respectively in Tables and Figures in Dietary Change (see appendix 5.7: page 421).

7.7.2. Analysis and discussion

The results show that the immigrants experienced dietary change. However, different gender, language and category sub-groups showed disparities in consumption changes of nutritional foods and junk and processed foods, increasing and decreasing consumption of different nutritional foods, and increasing and decreasing consumption of different junk and processed foods. Meanwhile, different gender and language sub-groups exhibited disparities in nutritional food and junk and processed food consumption belief changes. Some of the demographic factors were correlated with dietary change and/or significantly impacted the change.

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7.7.2.1. Consumption changes of nutritional foods and junk and processed foods

1. Total sample

The overwhelming majority of the total sample experienced consumption changes of the nutritional foods and junk and processed foods. Yet, consumption change of the nutritional foods of the immigrants was higher very somewhat (0.1%) than consumption change of their junk and processed foods, which exhibits that there was not difference between consumption changes of their nutritional foods and junk and processed foods.

2. Gender sub-groups

Consumption change rate (92.98 %) of the immigrant women in the nutritional foods was higher somewhat than that (91.93%) of the immigrant men, but their consumption change rate (90.48%) in junk and processed foods was lower slightly than that (93.19%) of the immigrant men, which reveals that there was almost not gender difference in consumption changes of the nutritional foods and junk and processed foods.

3. Language sub-groups

Chinese and English immigrants had respectively the highest Nutritional Food Consumption Change Rate and Junk and Processed Food Consumption Rate; while French immigrants had the lowermost Nutritional Food and Junk and Processed Food Consumption Change Rates. The results show that there were differences between English, French and Chinese immigrants in consumption changes of the nutritional foods and junk and processed foods.

4. Category sub-groups

 Principal Applicant immigrants had the highest Junk and Processed Food Consumption Change Rate; while Spouse and Dependent immigrants had the highest Nutritional Food Consumption Change Rate and the lowermost Junk and Processed Food Consumption Change Rate. However, Other (Refugee) immigrants had the lowermost Nutritional Food Consumption Change Rate. The results expose that there were differences between the immigrants of category sub-groups in consumption changes of the nutritional foods and junk and processed foods.

It has been observed that different immigrant sub-groups had similarity, disparity and preference of consumption of different nutritional foods and different junk and Processed Foods, which mainly focused on increasing and decreasing consumption in the foods.

7.7.2.2. Increasing and decreasing consumption in different nutritional foods

1. Total sample

The immigrants increased mainly consumption of Yogurt, Beef, Fresh Fruit, Fresh Vegetable, Fish and Shrimp, and decreased consumption of Pastes, Tea, Maize and Honey. In particular, they increased consumption of Fresh Fruit and Fresh Vegetable, because increasing rates of Fresh Fruit (49.88%) and Fresh Vegetable (49.63%) intake were higher than their decreasing rates (34.32% and 31.73%). A survey shows that South Asian immigrants in Canada increased consumption of fruits and vegetables and improved food preparation [Lesser 2014]. However, some of the studies indicate that immigrants reduced fruit and vegetable intake [Gilbert 2008, Holmboe-Ottesen 2012].

Similarly, other study reveals that the immigrants in Montréal, Canada declined consumption of Fruit and Vegetable [Girard 2013].

2. Gender sub-groups

The immigrant men consumed more Lean Meat, Beef, Chicken, Tofu, Rice, Natural Fruit Juices and Low-Fat Milk, but the immigrant women consumed more Fish, Shrimp, Yogurt, Oatmeal, Maize, Sweet Potato and Fresh Fruit. It has been noticed that the immigrant men increased consumption of Rice, but the immigrant women decreased consumption of Rice, and the immigrant men and women had approximate consumption of Egg, Honey, Pastes, Potato, Fresh Vegetable and Tea.

3. Language sub-groups

English immigrants mainly increased consumption of Yogurt, Fish and Shrimp, and decreased consumption of Fresh Vegetable, Fresh Fruit and Beef; while French immigrants mainly increased consumption of Rice, Chicken and Beef, and decreased consumption Chicken, Fresh Fruit and Fresh Vegetable. Most of French immigrants in Ottawa and Gatineau came from African countries. A dietary study in the United States reveals that African immigrants reported decreasing consumption of fruit and vegetable [Okafor 2014]. However, Chinese immigrants mainly increased consumption of Fresh Vegetable, Fresh Fruit and Fish, and decreased consumption of Rice, Tofu and Chicken. A study in America and Canada discloses that Chinese immigrants increased fruit and vegetable intake [Satia 2001]. Similarly, a dietary survey in Vancouver, Canada exhibits that over 50% of Chinese immigrants reported increasing consumption of fruits and

vegetables after immigration [Rosenmöller 2011]. Nevertheless, the results of this multicultural lifestyle change survey exposed that English and French immigrants decreased consumption of Fresh Vegetable and Fresh Fruit, and French immigrants decreased more greatly than English immigrants.

It is worth noting that immigrants of the three sub-groups increased greatly consumption of Yogurt, but English and Chinese immigrants increased more Yogurt consumption than French immigrants. Interestingly, Chinese immigrants decreased greatly consumption of traditional foods – Tofu and Rice, with increasing consumption of English and French immigrants in Tofu and Rice, which appears that many of Chinese immigrants could change dietary behaviors with acceptance of west dietary habits, and some of English and French immigrants could change dietary behaviors with affection of Chinese dietary habits. In the meantime, Chinese immigrants increased consumption of Oatmeal more greatly than English and French immigrants, with more consumption of English immigrants than French immigrants in Oatmeal. It seems that Chinese immigrants could have the greatest nutritional food consumption change, followed by English immigrants, and French immigrants have the least change.

4. Category sub-groups

Principal Applicant immigrants mainly and greatly increased consumption of Beef, Fresh Vegetable and Fresh Fruit, and less decreased consumption of Rice, Fresh Fruit and Fresh Vegetable; while Spouse and Dependent immigrants principally and greatly increased consumption of Yogurt, Fresh Fruit and Beef, and less decreased consumption of Fresh Fruit, Rice and Fresh Vegetable. However, Family Class immigrants mainly and

greatly increased consumption of Yogurt, Fish and Fresh Vegetable, and less decreased consumption of Fresh Fruit, Chicken and Egg. Other (Refugee) immigrants principally and greatly increased consumption of Rice, Chicken and Beef, and greatly decreased consumption of Fresh Fruit, Fresh Vegetable and Pastes.

7.7.2.3. Increasing and decreasing consumption in different junk and processed foods

1. Total sample

The immigrants increased mainly consumption of Biscuits and Instant Noodles, Coffee with Sugar, Fried Foods, High Sugar Cakes, Candy and Chocolate Bars, and Fatty, and decreased Salted Meat, Pickled Foods, High-Sugar Fruit Juices. In particular, they increased Fatty intake because increasing rate (32.84%) of Fatty intake was higher than decrease rate (29.51%). Some of research findings indicate that main dietary trend after immigration was a substantial increase in the foods that were energy dense and contain high levels of fat, sugar and salt [Gilbert 2008, Holmboe-Ottesen 2012]. A survey reveals that South Asian immigrants in Canada increased consumption of convenience foods, sugar-sweetened beverages and red meat [Lesser 2014].

2. Gender sub-groups

The immigrant men consumed more Fatty, Salted Meat, Sausage and Dried Meat, Canned Foods, Soft Drinks and Colas, Pickled Foods and Coffee with Sugar than the immigrant women, but the immigrant women consumed more Chips, Biscuits and Instant Noodles, High Sugar Cakes, Candy and Chocolate Bars, Ice Cream and Popsicle than the

immigrant men. It has been known that the immigrant men respectively increased and decreased consumption of Fatty and Canned Foods, but the immigrant women exhibited opposite results, and the immigrant men and women had approximate consumption of Fried Foods and High-Sugar Fruit Juices.

3. Language sub-groups

English immigrants mainly increased consumption of Coffee with Sugar, Chips, Biscuits and Instant Noodles, and High Sugar Cakes, and decreased consumption of Salted Meat, High-Sugar Fruit Juices and Fried Foods; while French immigrants mainly increased consumption of Fatty, Fried Foods, and Chips, Biscuits and Instant Noodles, and decreased consumption of Salted Meat, High-Sugar Fruit Juices and Pickled Foods. A dietary study in Madrid, Spain reveals that younger and recent West-African French immigrants consumed more fat, and sweetened foods and drinks after immigration [Delisle 2009]. However, Chinese immigrants mainly increased consumption of Chips, Biscuits and Instant Noodles, Coffee with Sugar and Fried Foods, and decreased Fatty, Pickled Foods and Salted Meat. A dietary study in Ontario, Canada discloses that 42% Chinese immigrants reported increasing consumption of Snacks [Garcia 2011].

It has been known that French immigrants consumed more Fatty than English immigrants, while English immigrants consumed more Fatty than Chinese immigrants. A study shows that diet of American Asian immigrants was relatively low fat and high cholesterol intake [Yang 1996]. However, other study reveals that the students from China, Hong Kong and Taiwan significantly increased consumption of fats after immigration to the United States [Pan 1999].

Meanwhile, Chinese immigrants increased consumption of Fried Foods and Chips, Biscuits and Instant Noodles more greatly than English and French immigrants, while English immigrants increased Fried Foods and Chips, Biscuits and Instant Noodles more greatly than French immigrants. However, decreasing rates of Pickled Foods and Salted Meat consumption of Chinese immigrants was higher greatly than those of English and French immigrants. A dietary survey exhibits that over 50% of Chinese immigrants in Vancouver, Canada reported decreasing use of deep-frying after immigration, but increasing consumption of convenience foods [Rosenmöller 2011]. Similarly, Canadian South Asian immigrants reported a decrease in deep-frying [Lesser 2014]. However, 50% of American South Asian immigrants increased frying, baking/grilling food [Deng 2013].

Furthermore, Chinese immigrants increased more High Sugar Cakes, Candy and Chocolate Bars and Coffee with Sugar intakes than English immigrants, with the least increasing consumption of French immigrants in the foods.

4. Category sub-groups

Principal Applicant immigrants mainly increased consumption of Coffee with Sugar, Chips, Biscuits and Instant Noodles, and Fried Foods, and decreased consumption of Salted Meat, Fatty, and Pickled Foods; while Spouse and Dependent immigrants principally increased consumption of Chips, Biscuits and Instant Noodles, Fried Foods, and High Sugar Cakes, and decreased consumption of Salted Meat, Pickled Foods, and Fatty. Nevertheless, Family Class immigrants mainly increased consumption of Chips, Biscuits and Instant Noodles, High Sugar Cakes, and Coffee with Sugar, and decreased consumption of Salted Meat, Fatty, and Pickled Foods. Other (Refugee) immigrants

principally increased consumption of Fatty, Fried Foods, and High Sugar Cakes, and decreased consumption of Salted Meat, Soft Drinks and Colas, and Pickled Foods.

7.7.2.4. Belief changes in food consumption

1. Gender sub-groups

The immigrant men and women exhibited approximate belief changes in Nutritional Food and Junk and Processed Food Consumption. However, the immigrant women had stronger beliefs of "Nutritional Food Can Promote Health" and "Junk and Processed Food Have Adverse Effects on Health" than the immigrant men.

2. Language sub-groups

Chinese immigrants had stronger beliefs of "Nutritional Food Can Promote Health" and "Junk and Processed Food Have Adverse Effects on Health" than English and French immigrants; while English immigrants had stronger belief of "Junk and Processed Food Have Adverse Effects on Health" than French immigrants. Chinese immigrants in Vancouver, Canada reported a higher awareness of healthy food choices after immigration [Rosenmöller 2011]. Chinese cultural beliefs played an important role in the dietary practices of Chinese immigrants who lived in North America, but the host culture also influenced their nutritional belief [Satia-Abouta 2002a]. However, recent educated and acculturated Chinese immigrants who were employed outside the home did not think Chinese diet was healthier than Western diet [Satia-Abouta 2002a].

7.7.2.5. Significance level

Though significance analysis shows that there were no statistical differences between most rates of the sub-groups in dietary change, percentage comparisons exhibit that there were substantial percentage differences between some of the rates. Moreover, there were significant differences between increasing and decreasing rates of the four category sub-groups in consumption of different nutritional foods and junk and processed foods.

7.7.2.6. Multivariate analysis

The results of correlation analysis show that Dietary Change (Dietary Behavior Change + Dietary Belief Change) was correlated positively with Speaking Languages, Age and Religion, and Dietary Behavior Change was correlated negatively with Religion. Therefore, Religion was correlated with both Dietary Behavior Change and Dietary Belief Change. Speaking Languages and Age were correlated mainly with Dietary Belief Change, because they were correlated with Dietary Change, but not with Dietary Behavior Change. It appears that dietary acculturation could be correlated with Dietary Change as Speaking Languages were correlated with Dietary Belief Change.

Furthermore, the results of regression analysis disclose that Speaking Languages, Age significantly impacted Dietary Change, but they influenced mainly Dietary Belief Change, as they did not significantly affected Dietary Behavior Change. However, Religion significantly impacted both Dietary Behavior Change and Dietary Belief Change. For that reason, the cultural difference might contribute the disparity of dietary change of the immigrant sub-groups.

7.7.2.7. Factor analysis

The results of factor analysis indicate that Dietary Change contained two factors: factor one (dietary behavior change factor) and factor two (dietary belief change). Factor one accounted for the majority of the total variance, and the line of factor two was almost flat on scree plot, which shows that factor one impacted significant Dietary Change, factor two did not influenced significantly Dietary Change. Therefore, Dietary Behavior Change was main or direct influencing factor on Dietary Change action, Dietary Belief Change was minor or indirect impacting factor on Dietary Change action.

7.7.2.8. Dietary change and acculturation

It has been noted that diet may be a salient marker of acculturation among immigrants [Akresh 2007]. The immigrants in Ottawa and Gatineau changed their dietary behavior and belief as time since immigration increased supports strongly theory of dietary acculturation. That is, as immigrants lived longer in a country, that immigrants adopted the eating patterns or food choices of the host country or occurred dietary change, and their dietary behavior and belief were more closely approximate to dietary behavior and belief of the host culture [Saria 2001, Saria 2010]. Acculturation has been widely described as "the process by which immigrants adopt the attitudes, values, customs, beliefs, and behaviors of a new culture" [LaFromboise 1993, Pérez-Escamilla 2007]. One of the most important aspects of acculturation is dietary acculturation [Thomas 2006, Popovic-Lipovac 2013, Sanou 2014], which may affect immigrant dietary habits and nutrition status [Satia-Abouta 2002b, Gray 2005, Ngo 2009]. Dietary acculturation specifically refers to the process that occurs when members of an immigrant group or sub-group adopt the dietary patterns of their new environment [Satia-Abouta 2003].

Immigrant dietary changes were associated with dietary acculturation in different groups or sub-groups [Pérez-Escamilla 2007, Oster 2010, Popovic-Lipovac 2013].

Obviously, higher fat, higher meat and sweetened drink, and lower fruit and vegetables intakes were associated with greater acculturation among immigrants [Pérez-Escamilla 2007, Novotny 2012]. Generally, acculturation is associated with adoption of healthy diet or consumption of nutritional food. Nevertheless, some of less acculturated groups or sub-groups exhibited healthier dietary practices [Allen 2014]. For example, some of less acculturated immigrants reported a significantly higher frequency of fruit and vegetable consumption [Ghaddar 2010]. On the other hand, acculturation may also be associated with adoption of unhealthy diet or consumption of junk and processed food [Unger 2004, Lynn 2006]. Higher acculturated immigrants adopted more "Western diet" [Ayala 2008, Desilets 2007, Patil 2009]. For instance, Chinese immigrants in North American countries increased consumption frequency of western foods (i.e. convenient foods), sweets and soft drinks, and reduced consumption frequency of traditional Chinese foods (i.e. rice, tofu and tea) as a result of acculturation [Lv 2004, Lv 2010, Deng 2013]. The results of this multicultural survey disclose that Chinese immigrants greatly increased consumption of "Western" foods – High Sugar Cakes, Chocolate Bars and Coffee with Sugar, which could exhibit their specific dietary acculturation [Satia 2010].

Meanwhile, acculturation is equated with language proficiency and preference, [Abraido-Lanza 2005, Lopez-Class 2011, Popovic-Lipovac 2013]. Greater English language use were associated with decline in fruit and vegetable intake and growth in fat and sweets intake [Montez 2008]. For example, Latino immigrants who spoke English and had lived in the United States for more years consumed more sugar than Latino

immigrants who spoke Spanish in the country [Ayala 2008]. However, American Chinese immigrants with better English proficiency had a greater increase in their consumption frequency of grains, fruits, vegetables, meat or meat alternatives, and fats/sweets [Lv 2004]. On the other hand, language acculturation may exhibit different dietary impacting effects on different linguistic sub-groups. For instance, French-speaking immigrants from West Africa in Montréal, Canada were identified a feeble acculturation and a loyalty to African dietary and health values, and retained eating habits of native countries after ten years [Pillarella 2006]. Nevertheless, many of French-speaking Haitian immigrants in Montréal increased consumption of fatty and decreased consumption of dietary fibre [Désilets 2007]. Similarly, some of French-speaking Tunisian immigrants in the South of France decreased consumption of carbohydrates and increased consumption of fatty and other high energy foods [Méjean 2009].

7. 8. Health Status Change

7.8.1. Results

The results of percentage, significance and multivariate (correlation and regression) analysis of the total sample and the sub-groups in health status change were presented respectively in Tables in Health Status Change (see appendix 5.8: page 430).

7.8.2. Analysis and discussion

The results show that the immigrants experienced health status change. However, different gender, language and category sub-groups showed different Health Status Change, Health Status Improvement and Health Status Decline. Some of the

demographic factors were correlated with health status change and/or significantly impacted the change.

7.8.2.1. Percentages in health status change

1. Total sample

The computed results of percentages show that most of the immigrants experienced health status change after immigration, and Health Status Improving Rate of the immigrants was higher their Health Status Declining Rate. It appears that the immigrants in Canada could be healthier after immigration than before immigration. The findings of this multicultural survey support "healthy immigrant effect" in Canada. However, some researchers suggest that the "healthy immigrant effect" might be more perceived than real and associated with the acculturation process [Newbold 2005a, Hyman 2007]. Meanwhile, other researcher indicates that year of arrival and region of origin may be important determinants of health and/or health status change [McDonald 2004].

2. Gender sub-groups

The results show that immigrant men and women had almost same Health Status Change Rates (75.18% and 75.44%), no gender difference in health status change. However, Health Status Improving Rate (42.82%) and Health Status Declining Rate (32.36%) of the immigrant men were respectively higher and lower than those (38.6% and 36.84%) of the immigrant women, which appears that the immigrant men could be healthier than the immigrant women. Some of research findings reveal that female immigrants were significantly more likely than male immigrants to rate their health

poorly and to report worse states of health, and could be at a very high risk of declining health status [Newbold 2003, Newbold 2005a, Hyman 2007]. Similarly, other study reveals a strong "healthy immigrant effect" among new immigrant middle-aged men and a poorer health report among immigrant middle-aged women [Kobayashi2012]. Nevertheless, a research finding indicates that female immigrants had better self-reported health than male immigrants [Wu 2005]. Moreover, health advantage of female immigrants decreased after over 10 years, but health advantage of male immigrants wore out after between 2 and 9 years [Hyman 2007, Vissandjee 2007].

3. Language sub-groups

It has been known that English immigrants had the highest Health Status Change Rate (79.14%), while Chinese immigrants had higher Change Rate (76.14%) and French immigrants had the lowermost Change Rate (70.52%). Interestingly, Chinese immigrants had the highest Health Status Improving Rate (54.55%), while English immigrants had lower Improving Rate (40.65%) and French immigrants had the lowermost Improving Rate (27.24%). However, French immigrants had the highest Health Status Declining Rate (43.28%), while English immigrants had lower Declining Rate (38.49%) and Chinese immigrants had the lowermost Declining Rate (21.59%). It appears that Chinese immigrants could be healthier than English immigrants, but English immigrants could be healthier than French immigrants. Some of the research findings reveal that different cultural immigrant groups or sub-groups experienced different health status change and certain groups or sub-groups had higher health status compared to others [Ng 2005, Newbold 2005a, Prus 2005]. For example, recent, non-English-speaking immigrants

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experienced a health advantage [Hyman 2007]. Similarly, some of visible-minority groups or sub-groups, such as Filipinos, Koreans, Blacks and Latinos, demonstrated better self-assessed health outcomes and more health advantage than non-visible minority groups or sub-groups, such as Jewish and South/East European ethnic groups [Prus 2005]. Furthermore, some of ethnic and racial groups, such as South Asian, Black, Latin American and English, experienced better functional health compared with others, such as aboriginal, Jewish, mixed racial groups [Wu 2005a]. However, a National Population Health Survey in Canada discloses that the immigrants from Asia, Africa, or South America were less likely to report excellent or very good health status compared to immigrants from Europe, Australia, New Zealand, the United States and Mexico [Dunn 2000, Ali 2004]. Analogously, some of research findings in Canada reveal that recent non-European immigrants were twice as likely as Europeans to experience declines in self-assessed health [Ng 2005, Newbold 2005a, Newbold 2005b].

On the other hand, language preference and English language proficiency may exhibit different impacting effects on immigrant health status [Lee 2013]. For example, Spanish-speaking Hispanics in the United States reported far worse health status than did English-speaking Hispanics [DuBard 2008].

4. Category sub-groups

The results reveal that Principal Applicant immigrants had the highest Health Status Change Rate (80.83%) and Health Status Improving Rate (52.85%), and Family Class immigrants had the second highest Health Status Change Rate (80.23%) and Health Status Improving Rate (39.55%), while Spouse and Dependent immigrants had lower

Health Status Change Rates (68.39%) and Health Status Improving Rate (37.31%), and Other (Refugee) immigrants had the lowermost Health Status Change Rates (54.29%) and Health Status Improving Rate (22.86%). However, Family Class immigrants had the highest Health Status Declining Rate (40.68%) and Other (Refugee) immigrants had the second highest Health Status Declining Rate (31.43%), while Spouse and Dependent immigrants had lower Health Status Declining Rate (31.09%) and Principal Applicant immigrants had the lowermost Health Status Declining Rate (27.98%). It is interesting to note that Health Status Improving Rate and Health Status Declining Rate of Spouse and Dependent immigrants were respectively lower 2.24% and 9.59% than those of Family Class immigrants. Meanwhile, Health Status Declining Rate and Health Status Improving Rate of Other (Refugee) immigrants were respectively lower 9.25% and 16.69% than those of Family Class immigrants. Hence, it appears that sequence of Health Status from good to poor could be Principal Applicant immigrants, Spouse and Dependent immigrants, Family Class immigrants and Other (Refugee) immigrants.

Similarly, immigrant health status data from Canadian government disclose that Principal Applicant immigrants were more likely to be generally healthy, while refugees were more likely to rate their health status as fair or poor [Zhao 2010]. Refugees often come from areas of conflict with poor public health infrastructure and were more likely to be at risk for malnutrition and infectious diseases [Newbold 2009, Zhao 2010]. Meanwhile, refugees could have experienced more financial and cultural barriers, which had negative effects on their health outcomes [Zhao 2010]. Therefore, refugees have the least improvement of health status after immigration. For example, a Statistics Canada's

longitudinal survey discloses that refugees were observed to have lower level of health and were more likely to transiting to a state of poor health [Newbold 2009].

7.8.2.2. Significance level

Though significance analysis shows that there were no significant differences between the rates of the immigrant sub-groups in health status change, percent comparisons indicate substantial differences between some of the rates.

7.8.2.3. Multivariate analysis

The results of correlation analysis show that Health Status Change was correlated positively with Age, Primary Occupation and negatively with Income. A recent survey in Canada shows that health status of immigrants was associated with age, sex, ethnic origin and income [Subedi 2014]. Meanwhile, the results of regression analysis disclose that Mother Tongue, Age, Primary Occupation and Income significantly impacted Health Status Change, so they could be determinants of Health Status Change. The cultural difference could lead to the disparities of health status change of the sub-groups.

7.8.2.4. Health status change and income

It has been observed in the multicultural survey that income significantly impacted health status change. A research report indicates that *income* was an important social and economic characteristic of individuals and a factor to influence the disparity of immigrant health status [Newbold 2003]. Some of findings show that high income immigrants were more likely to report their health status as very good or excellent [Dunn 2000, Zhao

2010], and low-income immigrants were at greatest risk of transitioning to poor health status [Newbold 2005a]. Similarly, a Statistics Canada's survey discloses that economic immigrants reported the highest level of self-assessed health [Newbold 2009].

7.8.2.5. Health status change and "healthy immigrant effect"

The "healthy immigrant effect" observed in other countries also prevails in Canada. The effect is most evident among those from non-European countries, who constitute the majority of recent immigrants to Canada [Chen 1996, Barozzino 2010, Sanou 2014]. For example, a Canadian Community Health Survey indicates that the first-generation immigrants of Black and French ethnicity tended to have better health than their Canadian-born counterparts [Kobayashi 2008]. However, a case study report indicates that there was no health advantage for immigrants, nor a gradient of worsening health with time since immigration [Pérez 2002]. The results of this multicultural survey support "healthy immigrant effect" in immigration countries and "Canadian immigrants, particularly recent immigrants, enjoyed a health advantage over both long-term immigrants and the Canadian-born population" [Newbold 2003, Ng 2005, Hyman 2007].

7.8.2.6. Health status change and health advantage decline

It has been noted that immigrant health advantages decreased along with increasing length of residence in Canada [Sun 2009]. Some of health research experts in Canada indicate that "healthy immigrant effect" tended to diminish over time [Newbold 2003, Gee 2004, HC 2010a, Fuller-Thomson 2011, Sanou 2013]. Some of surveys show that the "healthy immigrant effect" was stronger for recent (<10 years residence in Canada)

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immigrants [Vang 2015], and immigrant health status declined significantly within two years or the first four years after arrival in Canada [Newbold 2009, Fuller-Thomson 2011]. Many of factors may contribute the decline in health status, such as pre-/post-departure health elements [Keane 2001], bio-geographical and socio-economic environmental changes [Frisbie 2001, Cho 2004], lifestyle changes [Akresh 2007, Singh 2008, de Maio 2010, Lee 2013], and acculturation [Dean 2010, Gushulak 2011].

7.8.2.7. Health advantage decline and acculturation

Declining health with time in the receiving countries of immigrants has been called an "acculturation effect" [Finch 2009, Sanou 2014]. For instance, a recent report in the United States exhibits that the first generation immigrants were less likely to rate their health as poor/fair than the third generation immigrants who were more acculturated [Acevedo-Garcia 2010]. Similarly, other study reveal that the "healthy immigrant effect" might diminish with greater acculturation as the host culture potentially promoted more unhealthy weight gain than the heritage cultures [Delavari 2013].

7.8.2.8. Health advantage decline in certain immigrant sub-groups

The results of this multicultural survey reveal that health status improving rate in some language sub-group (i.e. French immigrants) or some category sub-group (i.e. Other/Refugee immigrants) was lower than their health status declining rate. A Canadian study indicates that the "healthy immigrant effect" was only present in certain sub-groups of immigrants [Bergorn 2009]. Similar evidence from the National Population Health Survey displays that the loss of 'healthy immigrant effect' might not be experienced

equally by all immigrants in Canada [Setia 2009]. Therefore, the principal researcher suggests that "decline in immigrant health status" over time existed in some of immigrant sub-groups instead of all immigrants in Canada, and different immigrant groups or sub-groups could have the disparities of health status change over time.

7.9. Theoretical argument on immigrant lifestyle change and Health Belief Model or Culture Health Belief Model

Although Health Belief Model (HBM) or Culture Health Belief Model (CHBM) was regarded as a suitable theoretical framework which the multicultural lifestyle change study based on, according to analysis of the multicultural health survey results, the principal researcher strongly argues that the model was incomplete and deficient, and needed to be modified appropriately and improved further.

7.9.1. Lifestyle change and Health Belief Model

The substantial elements of Health Belief Model are that personal behaviors tend to mirror beliefs and personal beliefs influence behaviors [Turner 2004, Lawson 2011]. The model rationalizes impact of beliefs on behaviors, but overlooks influence of behaviors on beliefs, interaction of behaviors and beliefs, and cooperating affection of behaviors and beliefs on actions. The multicultural survey results reveal that immigrant lifestyle behavior changes could not accord completely with lifestyle belief changes. Some of immigrants changed accordingly their lifestyle beliefs and lifestyle behaviors. However, other immigrants changed their lifestyle beliefs, but did not change

correspondingly their lifestyle behaviors, or changed their lifestyle behaviors, but did not

change coincidentally their lifestyle beliefs. The multicultural researcher agrees that the

behavior changes are related to the belief changes, and the belief changes may impact and

contribute the behavior changes [Campbell 2001, Roden 2004a, Roden 2004b]. However,

the researcher argues that change of a lifestyle belief must not lead to change of the

lifestyle behavior, or change of a lifestyle behavior must not be result of change of the

lifestyle belief. Meanwhile, lifestyle behavior change and lifestyle belief change could

not contribute equally to lifestyle change action. The researcher insists that behaviors and

beliefs interact on each other, and correlatively influence actions, but behaviors could

impact more significantly actions than beliefs. On that account, the multicultural

researcher strongly argues that the "Health Belief Model" should be modified to "Health

Behavior and Belief Model", which should emphasizes particularly mutual affection of

behaviors and beliefs, and their cooperating influence on actions.

7.9.2. Lifestyle change, culture and Culture Health Belief Model

Culture Health Belief Model is a modified Health Belief Model merged with cultural

factors [Benisovich 2003], which inspired the multicultural lifestyle change questionnaire

development and the multicultural survey. The addition of the cultural element in Health

Belief Model was reasonable and essential. However, the Culture Health Belief Model

did not elucidate clearly distinct influence of health beliefs on health behaviors in

different cultural groups, in particular cultural sub-groups. Immigrants' health behaviors

have been known to be influenced by the new environment and the culture in the host

countries [Landrine 2004, Joshi 2014]. Different cultural values can impact their

behaviors and beliefs [Voss 2008, Franzen-Castle 2008]. The multicultural survey results exhibit that different linguistic and cultural immigrant sub-groups had diverse lifestyles, and experienced various lifestyle changes. Hence, the principal researcher strongly argues that the "Culture Health Belief Model" should be modified to "Multiculture Health Behavior and Belief Model", which should include sub-cultural elements.

7.9.3. Lifestyle change, acculturation and Culture Health Belief Model

Immigrant behaviors and beliefs, including lifestyle behaviors and beliefs, are impacted inevitably by acculturation [Mainous 2008]. Acculturation may lead to change in health behaviors and beliefs of immigrants over time, and the acculturated disparities can contribute the unlikelinesses of their behavior and belief changes [Landrine 2004, Hendriks 2012, Joshi 2014]. The Culture Health Belief Model is insufficient and defective due to lack of acculturation content. Therefore, the principal researcher strongly argues that the mode should be modified to "Multiculture and Acculturation Health Behavior and Belief Model", which should include acculturation element.

7.10. Response rate and non-response rate

Total 875 immigrants volunteeringly involved in the Multicultural Lifestyle Change Survey. According to the criteria of qualified participants of the multicultural survey, 848 qualified participants were recruited to the survey. *Eligible rate of the multicultural lifestyle change survey was 96.91%.* 810 questionnaires were completed by the participants in Ottawa and Gatineau and returned to the principal researcher. *Response rate of the multicultural survey was 95.51%. Non-response rate was 4.48%.*

782 complete and entirely eligible questionnaires were returned to the principal

survoyor. 28 incomplete and/or partly eligible questionnaires were sent back to the

respondents and returned again to the researcher after being completed or corrected.

Once complete or eligible rate of questionnaire was 96.54%. Once incomplete or

ineligible rate of questionnaire was 3.46%.

Apparently, the multicultural lifestyle change survey had very high response rate

(96.54%), because the "self-administration of questionnaire completed in the presence of

research staff" was applied in the survey, and key informants and research assistants were

involved in the survey,. According to the general recommendation of survey experts for

the response rate, which should be 90% or higher rather than 70% [Jones 1996, Tolonen

2005], the high response rate (over 90%) of the survey could decrease greatly response

bias and contribute to more accurate and reliable results [Tolonen 2005].

7.11. Control of biases

All of researchers should consider and control appropriately biases in survey

[Podsakoff 2003]. In particular, health surveyors should control different biases for

acquiring public health data of high quality [Korn 1999, SC 2013, Ulrich 2013]. The

multicultural lifestyle change researcher minimized the biases and confounders by the use

of the methods and strategies as follow: (1) selecting appropriately representative sample

for reducing sampling bias, (2) designing the most suitable questions and recorded

accurately data for decreasing measurement bias, (3) including all of research variables

for diminishing omitted variable bias, (4) increasing response rate by remuneration of

$20 and presentation of staff or assistants for abating response bias, (5) analyzing

statistically data by SPSS software and acquiring assistance of statistical experts for reducing analytical bias, (6) analyzing and recording research findings carefully and completely for lessening reporting bias, and (7) keeping privacy and confidentiality for degrading selection and recruitment biases.

7.12. Research strengths and limitations

The principal researcher and research team have completed successfully the unique and initiative project, which can be regarded as a multicultural research *milestone or epic*. The researcher developed a Multicultural Lifestyle Change Questionnaire that included English, French and Chinese versions, pilot-tested the questionnaire, demonstrated that it had a high validity and reliability, examined lifestyle changes and health status change of different immigrant sub-groups, and identified the demographic factors that were correlated with the changes and impacted the changes. The acquired data and research findings are numerous and invaluable, which could contribute significantly multicultural health research, education, policy, program and practice.

However, the multicultural lifestyle change research were a retrospective self-reported lifestyle change and health status change survey, and had inaccuracy of certain degree because some of biases and errors was unknown. Firstly, because of the limitation of fund and time, the sample was not enough large. 1000 - 2000 sampling subjects could have higher precision, validity and reliability. Secondly, ideal random selection of immigrants was not used in the survey sampling. Consequently, there were potential for selection and response biases in the sample. Thirdly, the multicultural survey only involved in immigrants of English, French and Chinese sub-groups, and showed limitedly

multicultural representativeness due to lack of involvement of immigrants of Spanish, Arabic and other sub-groups. Fourthly, some survey ways (i.e. computer-assistant way and/or internet way) was not used in the lifestyle change survey besides the pencil-paper way. Fifthly, the multicultural quantitative questionnaire survey did not involve the component part of qualitative survey - multicultural interview. The integrated multicultural quantitative and qualitative data will be more valuable for multicultural research, education and policy-making, because interviewing data of immigrant lifestyles could disclose precisely and completely causes of lifestyle changes. Sixthly, immigrant lifestyle changes were examined only in one significant multicultural region in Canada instead of more multicultural cities or regions, which had insufficient generalizability of multicultural lifestyle changes. Seventhly, some of potential confounders could confound the results of this multicultural survey. Additionally, "health status improving rate" and "health status declining rate" in health status change were not particularly useful metrics for examination of health status.

7.13. Future Research

Future multicultural lifestyle research will include lifestyle and lifestyle change studies for various immigrant groups and sub-groups. Health and social researchers should involve in studies of more lifestyles, besides the six lifestyles – Smoking, Drinking, Mood, Sleep, Physical Activity and Diet. More multi-linguistic lifestyle or lifestyle change questionnaires should be designed, tested and used in multicultural health survey, besides the multicultural lifestyle change questionnaire of English, French and Chinese versions. Future multicultural lifestyle surveys should include questionnaire

surveys with closed-ended questions and interview with open-ended questions, and employ different survey ways, which should contain computer-assistant way and/or internet way. Future multicultural lifestyle change and health status change surveys should process in different multicultural cities and regions in Canada, and health status change survey should include examination of overall health status and chronic conditions. There should more cross-cultural, multi-lingual and multi-disciplinary researchers to involve in multicultural health research.

Chapter 8

Knowledge Translation

Today's researchers understand that it is no longer enough to do research, write up the results and present them at a conference of like-minded peers. The work must be mobilized into the hands and minds of those who will use it to shape emerging policies and practices [UO 2015]. Research findings will not change health outcomes unless health care organizations, systems, and professionals adopt them in practice [Curran 2011]. The better use of research and evidence in policy and practice can help save lives, reduce poverty and improve quality of life [Hanney 2003, CIHR 2015a].

Knowledge translation refers to the dissemination and implementation of research evidence, and the movement of knowledge, ideas, concepts and techniques from a formative location (i.e. institutions of advanced education) to all areas of the social and economic environment [Farquhar 2008]. According to the explanation of Canadian Institutes of Health Research (CIHR), knowledge translation (KT) is defined as a dynamic and iterative process that includes four stages - *Synthesis*, *Dissemination*, *Exchange and Ethically-sound application of knowledge* to improve the health of Canadians, provide more effective health services and products and strengthen the health care system [CIHR 2005]. Knowledge translation involves two types: (1) *end-of-grant KT*: the researcher develops and implements a plan for making knowledge users aware of the knowledge that is gained during a project, and (2) *integrated KT*: stakeholders or potential research knowledge users are engaged in the entire research process [CIHR 2012, CIHR 2014, CIHR 2015b]. In the public health field, knowledge translation efforts

are focused on three broad categories of knowledge: *research-based knowledge*, *tacit knowledge* and *knowledge derived from data analysis* [Lemire 2013]. The translation of the multicultural research findings in Ottawa and Gatineau, Canada is a dynamic multidirectional research-based end-of-grant knowledge translation and involves the above four stages or phases.

8.1. Research-based knowledge synthesis

Because of volume and complexity of research findings, the scientific knowledge or evidence is not readily understood by people outside the field, and has to be translated into a product suitable for use by decision makers. Therefore, the complex high power technical research information must be simplified, integrated and synthesized for communication to different audiences in the most appropriate way [Choi 2005].

Knowledge synthesis means the contextualization and integration of research findings of individual research studies within the larger body of knowledge on the topic. The syntheses must be reproducible and transparent in quantitative and/or qualitative methods, which include realistic and narrative syntheses and meta-syntheses [CIHR 2005]. Generally, a synthesis involve the steps: (1) stating the objectives of the research; (2) defining eligibility criteria for studies to be included; (3) identifying (all) potentially eligible studies; (4) applying eligibility criteria; (5) assembling the most complete data set feasible, comprising data extraction and quality appraisal; (6) analyzing this data set, using statistical synthesis and sensitivity analyses; and (7) preparing a structured report of the research [CIHR 2005, Pope 2007].

Knowledge synthesis typically involves two different forms: (1) the formal combination of different pieces of research evidence (i.e. research reports, peer-reviewed papers, policy briefs), (2) the less formal creation of communicating documents or acts (i.e. press releases, take-home messages, posters) [Campbell 2012]. The knowledge synthesis of this multicultural lifestyle changes was a realistic quantitative synthesis, which involved *an integrated research report* in the multicultural dissertation, *eight peer-reviewed articles and other informal papers*, as public health knowledge can take the form of products such as research reports and scientific articles [Lemire 2013].

8.2. Research-based knowledge dissemination

Knowledge dissemination is the act of using a strategy to spread research results and/or evidence-based practices to target audiences through the most effective channels [CIHR 2015]. Dissemination activities can include such things as summaries or briefings to stakeholders, educational sessions, practitioners and/or policy makers, engaging knowledge users in developing and executing dissemination or implementation plan, tools creation, and media engagement [CIHR 2005]. Four key elements of knowledge dissemination are *audience*, *message*, *delivery method* and *evaluation* [Lavis 2003a, Reardon 2006, Zarinpoush 2007, Grimshaw 2012].

8.2.1. Audience

Audience is an important element of knowledge dissemination, because if the research information is not presented by appropriate methods or formats to particular audiences, it is deemed inaccessible and cannot be used for decision-making [USAID

2009]. Researchers should provide health information to empower all stakeholder audiences in making evidence-based decisions [Start 2004]. Different stakeholders have different information needs for diverse decisions. Research findings are generally disseminated to the several audiences. Firstly, *politicians and government officials* use research findings to make decisions regarding policies, resource allocation, and strategic planning. Government sector officials have limited time and expertise to read detailed research reports; therefore, researchers often disseminate information to them in the form of policy briefs, brochures and executive summaries that highlight actionable recommendations for decision-making. Secondly, *program managers* employed by public agencies and nongovernmental organizations (NGOs) frequently use research information for decisions, including program design, planning, improvement, management and operations. Thirdly, *civil society, nongovernmental organizations and professional associations* often use evidence-based research to advocate for specific policies, programs, or issues. Fourthly, *private-sector companies* involve with efforts to address public health issues by developing prevention programs and care measures. Fifthly, *donors/funders* typically need information to assess accountability and program effectiveness and to inform investment decisions. Sixthly, *academic researchers and international agencies/organizations* often use research with the goal of informing future projects and interventions. Seventhly, *mass media*, including journals or magazines, newspapers, television and radio, are powerful communication tools with the potential of reaching a significant number of people [USAID 2009]. Particularly, media use research information to increase public awareness about health issues, to enable people to make evidence-based decisions about their own health and to generate support for policy

initiatives. Some of the most common methods of disseminating research information through the media are to build relationships with journalists, to help them to interpret and report data accurately, and to issue press releases [USAID 2009].

When defining the target audiences, the multicultural researcher considered fully the effective communication channels with the audiences, their desired actions, and their technical expertise, comprehension of language, cultural appropriateness, interest and preference and interpretation for the findings [CDC 2013]. On full account of benefit of the knowledge translation, the multicultural research findings are disseminated to six types of audiences – *immigrants and health practitioners*, *public health program managers, policy development and planning makers, health researchers, media and knowledge brokers*. Firstly, the messages that relate to immigrant lifestyles and health are provided to immigrants and those who provide direct care, advice and assistance to immigrants for disseminating knowledge of lifestyles and risks of diseases [Ng 2005]. Secondly, the information of immigrant lifestyles and health status before and after arrival in Canada is provided to those who manage relevant programs that interface with immigrants in health regions, health educational facilities, municipal health departments and nongovernmental organizations. The related research findings will be conceptualized in the context of disease prevention, lifestyle intervention and health promotion, and formulated in the applicable ways to become part of public health programs. Thirdly, the materials of this multicultural research findings are distributed to those who involve in making, consultation and recommendation of the policies around health that are relevant to migrants and mobile populations in governments, organizations, agencies and institutions. Fourthly, the documents of the research findings are presented to the public

health researchers in universities and institutions for research exchange and improvement. Fifthly, the synthesized and tailored research findings are sent to mass media for widespread knowledge dissemination. Sixthly, the crafted research findings are provided to knowledge brokers for facilitating the knowledge dissemination.

8.2.2. Message

How any type of research findings is packaged and presented can impact how readily the knowledge is to put into practice [Zarinpoush 2007]. In tailoring or crafting any message, it is important to focus on the five key points: (1) clear (a message is easy to understand), (2) concise (a message is easy to read), (3) consistent (a message is related to information that is consistent with other existing information), (4) compelling (a message offers something that commands attention), and (5) continuous (a message has follow-up to make sure it is not forgotten or overlooked) [Abernathy 2001]. The language of the message is also important, as the research information should be in the form of "ideas" instead of "data" for impacting decision makers [Lavis 2003a].

According to the five key points, the research results of the immigrant lifestyle changes and health status change were tailored and interpreted in a culturally appropriate way to the multicultural lifestyle change messages at Chapter 7: Report of Research Findings in the multicultural dissertation, which were transferred further to the multicultural research finding messages in the published peer-reviewed articles for promoting delivery, uptake and application. The multicultural messages can be used to inform decision making, change individual or organizational behaviour, develop policies and programs or modify professional practices [Lemire 2003].

8.2.3. Delivery method

Generally, the choice of method for knowledge translation depends on the audiences and the message [CIHI 2001], and the multiply accessible delivery methods are most effective [Lavis 2003a, Zarinpoush 2007]. The media delivery is one of the most suitable methods that disseminate knowledge for different audiences [Zarinpoush 2007].

8.2.3.1. Academic journals

The academic journals (''messengers'') publishing peer-reviewed articles are broadly acceptable disseminating media or KT tools, can add credibility to message and have the potential of reaching a large and diversified audience [USAID 2009, Campbell 2012]. The open-access publication papers on line can achieve a greater scientific impact and stand a much better chance of being noticed by policy-makers or other research stakeholders [Campbell 2012]. For that reason, the multicultural lifestyle change researcher firstly considered to publish the research findings on the academic journals for the effective knowledge dissemination. Moreover, working closely with journalists enables researchers to increase the likelihood that information is reported accurately [USAID 2009]. The messages in report of research findings were crafted and packaged to the multicultural peer-reviewed papers accessible on the international journals: (1). Ning Tang, Colin MacDougall; A Pilot-Testing Study of Multicultural Lifestyle Change Questionnaire in Ottawa and Gatineau, Canada. *International Journal of Current Research*, 2015, 7: 10 (22717-22720) (available at:

http://www.journalcra.com/article/pilot-testing-study-multicultural-lifestyle-change-questionnaire-ottawa-and-gatineau-canada ;

http://www.journalcra.com/sites/default/files/11662.pdf); (2) Ning Tang, Colin MacDougall, Danijela Gasevic; Smoking Change of English, French and Chinese Speaking Immigrants in Ottawa and Gatineau, Canada; *International Journal of Medical Science and Public Health*, 2015, 4:11 (1481-1488) (available at:

http://www.scopemed.org/?mno=179734 or

http://www.scopemed.org/fulltextpdf.php?mno=179734); (3) Ning Tang, Colin MacDougall; Alcohol Consumption Change of English, French and Chinese Speaking Immigrants in Ottawa and Gatineau, Canada; *Journal of Public Health*, 2015, 23:3 (157-164) (available at: http://link.springer.com/article/10.1007/s10389-015-0666-7 or

https://www.researchgate.net/publication/277609661_Alcohol_consumption_change_of_English_French_and_Chinese_speaking_immigrants_in_Ottawa_and_Gatineau_Canada);

(4) Ning Tang, Colin MacDougall; Mood Change of English, French and Chinese Immigrants in Ottawa-Gatineau Region, Canada; *International Journal of Public Health Sciences*, 2015, 4:1 (51-58) (available at:

http://www.iaesjournal.com/online/index.php/IJPHS/article/view/7110); (5) Ning Tang, Colin MacDougall, Danijela Gasevic; Sleep Change of English, French and Chinese Speaking Immigrants in Ottawa and Gatineau, Canada; *International Journal of Health Sciences and Research*, 2015, 5: 4 (230-240) (available at:

http://www.scopemed.org/fulltextpdf.php?mno=184361); (6) Ning Tang, Colin MacDougall, Danijela Gasevic; Physical Activity Change of English, French and Chinese Speaking Immigrants in Ottawa and Gatineau, Canada; *Public Health Research*, 2015, 5:

2 (available at: http://article.sapub.org/10.5923.j.phr.20150502.01.html); (7) Ning Tang;

Dietary Change of English, French and Chinese Speaking Immigrants in Ottawa and

Gatineau, Canada; *Journal of Human Nutrition and Food Sciences*, 2015, 3: (3) 1064,

Issue: 2333-6706 (available at: http://www.jscimedcentral.com/Nutrition/nutrition-3-

1064.pdf); (8) Ning Tang, Colin MacDougall; Health Status Change of English, French

and Chinese Immigrants in Ottawa and Gatineau, Canada; *Universal Journal of Public

Health*, 2015, 3: 3 (128 – 136) (available at:

http://www.hrpub.org/journals/article_info.php?aid=2615 , or

http://www.hrpub.org/download/20150510/UJPH4-17603874.pdf).

8.2.3.2. Press releases

The completion of a successful research project is an event worthy of wider

attention. Creating a press release can be another piece of useful informational support

for the peer-reviewed papers, and/or for some of the other ongoing KT activities

[Campbell 2012]. Newspapers and other media outlet receive dozens of press releases

every day and disseminate the tailored messages to the audiences to multiply

astronomically. The multicultural research messages are tailored to the concise press

releases, which will be delivered to newspapers, newsletters, magazines and other media

for supporting the knowledge dissemination of peer-reviewed papers and KT activities.

8.2.3.3. Take-home messages

Take-home messages are simple list of three or four major points or implications

arising from a single research project or a larger body of research evidence, which

include the graded-entry formats: a one-page of take-home messages, a three-page executive summary, and a 25-page full length paper [Lavis 2005b, Rosenbaum 2011]. Evidence shows that the readable graded-entry format (one page of key messages followed by a short summary) was well suited to the needs and preferences of policy-makers [Campbell 2012]. The abstract of each peer-reviewed paper and the concise take-home messages with a short summary in the multicultural lifestyle changes and health status change will be delivered to the related target audiences, in particular, policy or decision-making audiences for deliverying effectively the information in health policy contexts where readers have limited time [Rosenbaum 2011].

8.2.3.4. Knowledge brokering

Knowledge brokering helps build relationships and networks for sharing existing research and ideas and stimulating new work, and supports evidence-based decision-making by encouraging the connections that ease knowledge translation [CHSRF 2003]. The messages of the immigrant lifestyle and health status changes will be delivered to the related knowledge-broker networks and the knowledge brokers to promote and facilitate the knowledge dissemination and KT activities.

8.2.3.5. Other methods

In order to enhance dissemination of the multicultural research findings and to underpin immigrant and multicultural health policy and programmes, the multicultural messages will be tailored and packaged to brochures and leaflets or short messages, and then to distribute to social media platforms (i.e. TV, redio, print and poster) or to deliver

to the public web site(s) or web site of the institution. Meanwhile, the principal researcher will create a "blog" on line for diffusing the messages, and comb his own email boxes for contact addresses and send out one mass email alerting all to his works.

8.2.4. Evaluation

Evaluation refers to the effects that are expected as a result of knowledge translation [Zarinpoush 2007]. Collecting information of the dissemination efforts allows researchers to assess whether the communication objectives were achieved, how the research findings were used, and how the knowledge improved decision-making [USAID 2009].

The multicultural health researcher will not only identify what, when, how, and to what extent information is shared but also take into account how information could be received and used for evaluating the outcomes of the anticipated knowledge translation, both in terms of quantity and quality [Holi 2008, CDC 2013]. The performance measures are designed to: (1) capture a process associated with the pursuit of an impact (i.e. delivering a series of workshops), (2) capture intermediate outcomes (i.e. changes in awareness, knowledge, or attitudes), and (3) describe long term outcomes (i.e. tangible impacts on decision-making) [Lavis 2003b]. Firstly, the principale researcher will communicate with widespread audiences for examination of availability, accessibility, and usefulness of the knowledge. Secondly, the researcher will consult immigrants and providers of immigrant care and service for identifying use of the knowledge, and examine the lifestyle changes and health status change of immigrants through longitudinal follow-up surveys in the future. Thirdly, the researcher will contact managers and staff in health agencies and nongovernmental organizations for adoption

and formulation of the knowledge, and officers in governmental health departments for policy and programme formulation of the knowledge.

8.3. Research-based knowledge exchange

Knowledge exchange refers to the interaction among researchers, decision makers, and other stakeholders, resulting in two-way communication [Lavis 2003b]. The knowledge exchange is collaborative problem-solving between researchers and decision-makers that happens through linkage and exchange [CIHR 2005], which can lead to an ongoing dialogue between knowledge producers and users, create mutual learning opportunities for both groups, and bridge the know-do gap in the health care and public health sectors [WHO 2005a, Zarinpoush 2007, Lapaige 2010].

The research report, the related documents and materials of this multicultural lifestyle changes and health status change will be presented at the related meetings, conferences, symposiums, seminars, webinars, forums, workshops and knowledge brokering settings to share the findings [Davis 1996, Zarinpoush 2007, USAID 2009]. The purpose of the meetings is to bring together the disparate individuals and organizations working in the area of immigration and multicultural health to share knowledge, explore collaborative opportunities, and develop better practices to guide multicultural and immigrant health research, practice and policy activities [Norman 2006].

8.4. Ethically-sound application of research-based knowledge

Ethically-sound knowledge translation activities for improving health are those that are consistent with ethical principles and norms, social values, as well as legal and other

regulatory frameworks – while keeping in mind that principles, values and laws can compete among and between each other at any given point in time [CIHR 2005].

Indisputably, the research-based knowledge translation of this multicultural lifestyle changes should be based on ethically and bioethically justified/appropriate principles for optimizing outcomes [Trevor-Deutsch 2015]. The fundamental ethical principles abided in the knowledge translation activities are *utility* and *justice*, which include: (1) the knowledge translation should be beneficial to individuals and to society, (2) the knowledge translation should achieve the greatest benefit for the greatest number of people, (3) the knowledge translation should avoid harmful outcomes, (4) the benefits resulting from the knowledge translation should be fairly distributed among individuals, and within and among communities, (5) the knowledge translation should optimize the efficient use of resources, (6) the conflicts and interests of the knowledge translation should be disclosed fully [Trevor-Deutsch 2015]. Meanwhile, the equity and equality in the cultures is also considered in the multicultural knowledge translation for maximizing benefits and minimizing risks.

8.5. Translating knowledge of multicultural lifestyle changes and health status change into health policy and practice

It is well-known that health research findings should be formulated or generalized to policies and programmes or used to develop new policies and programmes, because the evidence-based policies and programmes can control and prevent diseases and promote health after being adopted appropriately (knowledge adoption) [Lomas 2009, Bunn 2010, INSPQ 2013, CIHR 2015b]. For example, public health policy interventions have been

identified as having considerable potential to improve the population's health and address health inequalities [Macintyre 2007, Bambra 2010]. Knowledge of the research findings of the multicultural lifestyle changes and health status change involving in the dissertation and related academic publications may be translated to the related or new health policies and programmes for promoting positive multicultural lifestyle behaviour change, health improvement and disease risk reduction.

8.5.1. Multicultural tobacco control programs, policies and education campaigns

Tobacco consumption represents a population issue rather than an individual health issue because of smoke-related harms across a broad range of the population. Reducing overall tobacco consumption in the population is a necessary prerequisite to reducing smoke-related harm. Smoking cessation programs and policies and mass media anti-smoking education campaigns can effectively control and reduce tobacco consumption [WHO 2004a, CSG 2008, Davis 2012, Durkin 2012]. It has been known that the related laws, regulations, policies and programes were made in some of countries in order to control tobacco consumption. For example, Cmprehensive Tobacco Control Strategies and a National Tobacco Strategy were made respectively in America and Australia for tobacco control [O'Connor 2001, AG 2011]. Similarly, a national strategy and regional strategies for tobacco control and federal tobacco legislations were also made in Canada for controlling tobacco consumption [HC 2011, HC 2013b, Curtis 2013, TBCS 2015]. The smoking analysis results of the multicultural lifestyle change survey show that the immigrants in Ottawa and Gatineau, Canada had higher smoking rate and immigrant smokers increased after immigration.

Therefore, multicultural tobacco control programs, policies and educational campaigns are essential in Canada for reducing substantially tobacco consumption in population, particularly in immigrants. The multiculturally comprehensive approaches of tobacco consumption reduction should include: (1) increasing price or taxes of tobacco products [WHO 2004, CSG 2008]; (2) regulating multi-lingual warning labels on tobacco products and smoking prohibition signs in workplaces and other public places; (3) making intensive multicultural clinical smoking cessation programs (including reminding and counselling programs to quit smoking); (4) developing multicultural tobacco surveillance system for monitoring smoking and smoking cessation effects [WHO 2016b]; (5) developing professional training programes and training multicultural professionals of tobacco dependence treatment or nicotine replacement therapy and smoking cessation services in clinics and communities (including multi-lingual telephone quitting support); (6) reducing payments for effective treatments for immigrant patients who want to quit smoking; (7) conducting multicultural public education media campaigns on TV, radio, newspapers, maginzes and internet for preventing and quitting smoking (including multicultural smoke-free activities in schools) and for promoting positive smoking behavior and briefs changes [CSG 2008].

8.5.2. Multicultural alcohol overconsumption control programs, policies and education campaigns

Alcohol is related to more than 60 types of disease, disability and injury; alcohol misuse is associated with a range of mental disorders and can exacerbate existing mental health problems; over-drinking on a regular basis increases the risk of damaging one's

health, including liver damage, mouth and throat cancers and raised blood pressure [Anderson 2009, WHO 2010b, Katikiressi 2014]. It has been known that the related laws, regulations, policies and programes were made in some of countries in order to reduce alcohol overconsumption, binge or heavy drinking and alcohol misuse. For example, Scotland made related public health policy and passed legislation introducing a minimum unit price for alcohol in an attempt to reduce consumption and associated harms by increasing the price of the cheapest alcohol [Katikiressi 2014]. Meanwhile, a comprehensive National Alcohol Strategy, provincial alcohol stratigies and Canadian's Low-Risk Alcohol Drinking Guidelines have been made in Canada for regulating alcohol consumption [Finnerty 2007, CCSA 2013, Giesbrecht 2016]. The alcohol consumption analysis results of the multicultural lifestyle change survey show that the immigrants in Ottawa and Gatineau, Canada had higher drinking rate and most of the immigrants increased consumption of alcohol.

Therefore, multicultural programs, policies and educational campaigns of alcohol consumption reduction are essential in Canada for decreasing alcohol-related harms in population, particularly in immigrants. The multiculturally comprehensive approaches of alcohol consumption reduction should include: (1) increasing price or taxes of alcoholic beverages and surrogate alcohol [Finnerty 2007]; (2) enhancing drink-driving penalty; (3) regulating multicultural modes of retail sales of alcohol, multi-lingual warning labels of over-drinking on bottles and warning signs of over-drinking in dirnking bars, restaurant, canteens, shops and other public places; (4) developing or strengthening multicultural monitoring and surveillance strategies for alcohol consumption [WHO 2010b]; (5) making intensive multicultural programs and guidelines of alcohol consumption

reduction (including reminding and counselling programs to drinking); (6) developing professional training programes and training multicultural professionals of alcohol dependence treatment, over-drinking saving and treatment, and rehabilitation in clinics and communities [Anderson 2009]; (7) reducing payments for effective treatments for over-drinking immigrant patients; (8) conducting multicultural public education media campaigns on TV, radio, newspapers, maginzes and internet for preventing over-drinking or alcohol misuse (particularly including multicultural alcohol consumption control activities in schools and vulnerable immigrant groups) and for promoting positive alcohol consumption behavior and briefs changes [Dejong 2002, Saltz 2002, Anderson 2009].

8.5.3. Multicultural mood improvement programs

Mood has been shown to have a profound influence on health [Futterman 1994, Armitage 1999]. The indirect effects of mood on health include health-related behaviour changes [Stroebe 2011]. Mood and anxiety disorders have a major impact on people's lives [GC 2014]. Everyone experiences "highs" and "lows" in life, but people with mood disorders experience them with greater intensity and for longer periods of time than most people [CMHA 2016]. In 2013, an estimated 3 million Canadians (11.6%) aged 18 years or older reported that they had a mood and/or anxiety disorder [SC 2013d, GC 2014]. The mood analysis results of the multicultural lifestyle change survey show that 34% of the immigrants in Ottawa and Gatineau, Canada experienced mood status decline.

Therefore, multicultural mood improvement programs are essential in Canada for improving mental health of immigrants. The multiculturally comprehensive approaches of mood improvement should include: (1) making intensive multicultural mood

improvement programs and guidelines (including "Mood Disorders Program") [MHA 2016, HC 2016]; (2) developing multicultural mental health professional training programes, training multicultural psychotherapists and mental health professionals in clinics and communities and strengthening their cultural care competency [Kongnetiman 2009]; (3) developing multicultural social support networks, family and mutual support programs in order to enable immigrants to live mentally healthier [Seidler 2016].

8.5.4. Multicultural sleep improvement programs and policies

Sleep plays a vital role in good health and well-being throughout life. Getting enough quality sleep at the right times can help protect mental health, physical health, quality of life and safety [NHLBI 2012, DSM 2016a]. Insufficient sleep or sleep deprivation may increase a person's risk of developing serious medical conditions, including obesity, diabetes, cardiovascular disease, weaker immunity, stress and depression, and be associated with a shortened lifespan [WHO 2004b, DSM 2016b]. The sleep analysis results of the multicultural lifestyle change survey show that 28% and 36% of the immigrants in Ottawa and Gatineau, Canada experienced respectively sleep time decreasing and sleep quality declining.

Therefore, multicultural sleep improvement programs and policies in Canada are essential for effectively improving immigrant sleep. The multiculturally comprehensive approaches of sleep improvement should include: (1) building multicultural noise reduction mechanisms, including financial support and programmes aimed at noise insulation of dwellings, for achieving improved sleep quality in general population (particularly in immigrant population) [WHO 2004b]; (2) making multicultural diagnosis

and treatment programs and guidelines of sleep disorders, and sleep improvement strategies in hospitals and clinics; (3) developing multicultural sleep monitoring systems and behavioral risk factor surveillance systems [Colten 2006]; (4) developing professional training initiatives and training multicultural and multidisciplinary doctors, nurses and health professionals who have the capacity to recognize, diagnose, and treat chronic sleep loss and sleep disorders, and to provide sleep consultation in hospitals and communities [Colten 2006]; (5) conducting multicultural sleep public education and awareness campaigns and activities in communities and schools in order to develop proper sleep habits and to promote sleep improvement.

8.5.5. Multicultural physical activity programs, policies and education campaigns

Physical activity can control weight, decrease overall mortality and morbidity, prevent or reduce effects of many chronic diseases (i.e. cardiovascular diseases, diabetes, arthritis, osteoporosis, stroke and some cancers), strengthen bones and muscles, improve mental health and mood, boost energy, support better sleep, promote psychological well-being, and increase chances of living longer [Warburton 2006, Reiner 2013, DNPAO 2015]. Physical inactivity has been identified as the fourth leading risk factor for global mortality [WHO 2016c]. WHO developed global strategy on physical activity in 2004 [WHO 2004c]. Physical activity has been on Canada's policy agenda since Confederation [Craig 2011], yet 52% of Canadian adults do less than the equivalent of 30 minutes of moderate activity daily [SC 2009c]. The physical activity analysis results of the multicultural lifestyle change survey exhibit that most of the immigrants in Ottawa and Gatineau, Canada increased their exercise time and item number, but 31%, 38% and 22%

of them decreased respectively Physical Exercise Time, Physical Activity Level and Physical Exercise Item Number. Meanwhile, their physical activity level decreased. On the other hand, the Canadian immigrants for the main physical exercise items (Walking and Fitness Exercises) after immigration were less than 70%. Moreover, the Canadian immigrants for other physical exercise items after immigration were less than 50% (43%, 23%, 22%, 21% respectively for Jogging/Running, Basket Ball, Swimming, Soccer). Particularly, the immigrants for Badminton, Hiking, Biking, Tennis, Skiing, Skating and Yoga were less than 20%; and the immigrants for Hockey and TaiJi/QiGong were less than 10%. Additionally, about half of the immigrants changed physical exercise belief.

Therefore, multicultural physical activity programs, policies and educational campaigns in Canada are very essential for effectively enhancing immigrant physical activity and promoting population health. The multiculturally comprehensive approaches of physical activity should include: (1) increasing, enhancing and revitalizing culturally appropriate or tailored public physical activity infrastructures in communities, and. increasing availability, affordability, accessibility and safe access of public physical activity facilities and sites for different multicultural population groups [PHAC 2005, WHO 2007b, Pate 2016]; (2) developing multicultural and multi-lingual guidelines and tools for physical activity, including making and implementing healthy multicultural programs and initiatives to promote physical activity in the workplace setting [Pate 2016]; (3) increasing and sustaining funding support for multicultural physical activity programs; (4) monitoring and evaluating participation in multicultural community-based physical activity programs to gauge their effectiveness in promoting increased levels of physical activity, and screening risk factors of physical activity [Pate 2016]; (5)

eliminating disparities in physical activity access based on race, ethnicity, culture, gender, disability, socioeconomic status, geography, age, and sexual orientation, and ensuring equitable access to physical activity opportunities [CAL 2004, PHAC 2005]; (6) establishing and increasing or widening greenway corridors, bicycle lanes and sidewalks or walking trails, ensuring appropriate connections and continuity, improving street lighting, increasing ease and safety of street crossings [PHAC 2005, CDC 2011]; (7) implementing multicultural initiatives to support more active transportation (including active transport to school), providing bicycle racks on buses and increasing parking costs [CDC 2011, PHI 2014]; (8) training multicultural and multi-lingual physical activity counselors or instructors; (9) developing multicultural mass media eduation campaigns in order to increase awareness of the benefits of physical activity and to influence attitudes, behaviors and beliefs about physical activity [Brown 2012, CPSTF 2012]; (10) building, strengthening and maintaining multicultural social networks for promoting positive physical activity behavior change and increasing physical activity levels [CDC 2011].

8.5.6. Multicultural diet improvement programs, policies and education campaigns

Diet can greatly affect health and well-being, and plays a critical role in the prevention and potential treatment of disease [WHO 2016c]. Scientific studies have shown that healthy diet could protect against malnutrition in all its forms, maintain a healthy weight, as well as reduce the risk of noncommunicable diseases (NCDs), including diabetes mellitus, cardiovascular disease (CVD), hypertension and stroke, some types of cancer and other diseases [WHO 2015, WHO 2016d]. Unhealthy diet can lead to various diseases and has been identified as one of the most important modifiable risk

factors for the development of chronic disease [WHO 2005b, Brambila-Macias 2011]. WHO developed global strategy on diet in 2004 [WHO 2004c]. Health Canada has defined "Healthy" and "Unhealthy" Foods, made nutrition policy and promotion program and provided dietary recommendations [HC 2013c, HC 2015a]. However, the majority of Canadians do not meet the national dietary recommendations [Campbell 2016]. Both Canadian children and adults are under consuming fruits and vegetables [Garriguet 2007, SC 2014]. The majority (61.7%) of dietary calories (energy) that Canadians consume come from highly processed products [Moubarac 2013]. The diet activity analysis results of the multicultural lifestyle change survey exhibit that certain immigrants in Ottawa and Gatineau, Canada increased some of healthy (nutritional) foods; others increased some of healthy foods. Particularly, 34%, 32%, 30%, 29%, 27% and 23% of the immigrants decreased respectively consumption of Fresh Fruit, Fresh Vegetable, Chicken, Rice, Egg and Pastes. Meanwhile, certain immigrants in Ottawa and Gatineau decreased some of unhealthy (junk and processed); others increased some of unhealthy foods. In particular, 55%, 50%, 49%, 48%, 39% and 33% of the immigrants increased respectively consumption of Chips, Biscuits and Instant Noodles, Coffee with Sugar, Fried Foods, High Sugar Cakes, Candy and Chocolate Bars, and Fatty. On the other hand, 18% and 25% of the immigrants weakened respectively beliefs of "Nutritional Food Can Promote Health" and "Junk and Processed Food Have Adverse Effects on Health".

It has been known that culture could influence consumption and preparation of foods [EUFIC 2005, Monin 2014], but acculturation might amend food choice when moving to a new country [Ishak 2013]. Therefore, multicultural diet improvement programs, policies and educational campaigns in Canada are essential for effectively increasing

immigrant consumption of healthy foods, decreasing their consumption of unhealthy foods, and promoting their dietary health with positive change of their dietary behavior and belief. The multiculturally comprehensive improvement approaches in diet should include: (1) developing multicultural dietary programs and food service programs in order to improve eating habits and nutritional intake in Canada [MAS 2012, Hawkes 2013a, Orji 2014]; (2) developing multicultural improvement guidelines of healthy and unhealthy food consumption for improving dietary behaviours, promoting healthy eating and reducing burden of diet-related ill health [Landes 2009, Hawkes 2013a, Hollins 2015]; (3) regulating food industry practices, content of foods, healthy and unhealthy food advertising and marketing communications for reducing diet-related morbidity, mortality and disability [Hollins 2015]; (4) regulating multicultural diet in hospitals, schools and social care settings for preventing and controlling diet-related chronic diseases [Bundy 2006, Hollins 2015]; (5) developing multicultural diet detecting system in order to monitor and evaluate diet of different cultural sub-groups; (6) training multicultural and multi-lingual dietitians, nutritional counselors and health professionals in food and nutrition [Hawkes 2013b]; (7) developing multicultural community-focused food preparation, cooking and environment change program for promoting healthier and safer eating [Hawkes 2013b]; (8) conducting multicultural dietary mass media public information campaigns for raising awareness of healthy and unhealthy eating, improving dietary habits and strengthening beliefs of "Nutritional Food Can Promote Health" and "Junk and Processed Food Have Adverse Effects on Health" [Hawkes 2013b, Merkur 2013, Palmberg 2015]; (9) conducting multicultural food label awareness campaigns for

supporting informed food choice and promoting equal access to dietary sheets and food labels [Brambila-Macias 2011, HC 2015b].

8.5.7. Multicultural and culturally competent health improvement and promotion programs and policies

Immigrants in receiving countries have been identified as a vulnerable population, overall, they have lower rates of health insurance, use less health care, and receive lower quality of care than receiving country-born populations [Derose 2007]. Health care system should effectively identify and meet the specific needs of all culturally, religiously and linguistically diverse groups [MHNSW 2012a]. Policymakers should seriously consider immigrant health status and health change [Brownson 2009]. The health status analysis results of the multicultural lifestyle change survey show that Health Status Improving Rate of the immigrants was higher their Health Status Declining Rate, but 35% of them experienced health status declining.

Therefore, multicultural and culturally competent health improvement and promotion programs and policies are essential for effectively improving and promoting population health in immigrant-receiving countries. The multiculturally comprehensive approaches of health improvement and promotion should include: (1) developing multicultural and culturally competent health care, disease prevention and health promotion programs [HC 2007, CNO 2009, MHNSW 2012a]; (2) developing multicultural detection programs for detecting health care needs and unmet needs of immigrants and refuges [Wu 2005, MHNSW 2009, Newbold 2010]; (3) training multicultural students in colleges and universities, health care providers (practitioners and

organizations), medical and health interpreters and community health workers, and developing and enhancing their cultural knowledge, awareness, sensitivity and competence for providing culturally and linguistically appropriate health care services [PHCS 2005, HC 2007, CNO 2009]; (4) developing multicultural guidelines of health and medical translation and interpretation services, and regulating multicultural and culturally competent health training, translation education and interpreting services [HC 2007, MHNSW 2006]; (5) developing social support networks for promoting multicultural health care [HC 2007]; (6) developing multicultural health communication systems for promoting equal and equitable access to health services [HC 2007, MHNSW 2012b]; (7) developing multicultural healthy living programs for ptomoting population [PHAC 2011]; (8) conducting multicultural education campaigns of health literacy and healthy lifestyle campaigns, and creating healthier communities, cities and regions [Kreps 2008, Simich 2009, MAQ 2011].

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Appendices

Appendix 1: Definition of Question Content in Sections and Sub-sections of the Multicultural Lifestyle Change Questionnaire (page 364)

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Appendix 1:

Definition of Question Content in Sections and Sub-sections of

the Multicultural Lifestyle Change Questionnaire

Content of the questions in sections and sub-sections of the multicultural lifestyle change questionnaire was defined appropriately as follows:

1. Smoking change section:

(1). Smoking behavior change subsection:

The multicultural questionnaire designer asked firstly whether respondents smoke (never smoking, smoking before immigration, smoking after immigration, smoking before and after immigration), then, asked how many cigarettes respondents smoke each day. The designed questions in the subsection include question(s) of smoking behavior description and question(s) of smoking tobacco number before arrival and since arrival in Canada for comparing smoking behavior change difference between the sub-groups.

(2). Smoking belief change subsection:

The designed questions in the subsection contained the belief questions with regards to smoking cigarettes before arrival and since arrival in Canada for analyzing and comparing smoking belief change difference between the sub-groups.

2. Alcohol consumption change section:

(1). Alcohol consumption behavior change subsection:

The multicultural questionnaire designer asked firstly whether respondents consume alcohol (never drinking, drinking before immigration, drinking after immigration, drinking before and after immigration), then, asked how much alcohol respondents consume each day. The designed questions in the subsection should include question(s) of alcohol consumption behavior description and question(s) of alcohol consumption amount before arrival and since arrival in Canada for analyzing and comparing alcohol consumption behavior change difference between the sub-groups.

(2). Alcohol consumption belief change subsection:

The designed questions in the subsection encompassed questions of belief with regards to alcohol consumption before arrival and since arrival in Canada for analyzing and comparing alcohol consumption belief change difference between the sub-groups.

3. Mood change section:

(1). Mood status change subsection:

The designed questions in the subsection contained questions of mood status before arrival and since arrival in Canada for analyzing and comparing mood status change difference between the sub-groups.

(2). Mood belief change subsection:

The designed questions in the subsection were composed of the belief questions with regards to anxiety before arrival and since arrival in Canada for analyzing and comparing mood belief change difference between the sub-groups.

4. Sleep change section:

(1). Sleep behavior change subsection:

The designed questions in the subsection contained two items: sleep time change and sleep quality change questions. The items encompassed respectively the questions of sleep time and sleep quality before arrival and since arrival in Canada for analyzing and comparing sleep behavior change difference between the sub-groups.

(2). Sleep belief change subsection:

The designed questions in the subsection included the sleep belief questions before arrival and since arrival in Canada for analyzing and comparing sleep belief change difference between the sub-groups.

5. Physical activity change section:

(1). Physical activity behavior change subsection:

The designed questions in the subsection encompassed respectively the questions of physical activity time, physical activity level and physical exercise items before arrival and since arrival in Canada for analyzing and comparing physical activity behavior change difference between the sub-groups.

(2). Physical exercise belief subsection:

The designed questions in the subsection included questions of belief with regards to physical exercise beliefs before arrival and since arrival in Canada for analyzing and comparing physical exercise belief change difference between the sub-groups.

6. Dietary change section:

(1) Dietary behavior change subsection:

The designed questions in the subsection included two items: consumption of nutritional foods and junk and processed foods. The items contained respectively the questions of consumption change and increasing or decreasing consumption of nutritional foods and junk and processed foods since arrival in Canada for analyzing and comparing consumption difference of the foods between the sub-groups.

(2). Dietary belief change subsection:

The designed questions in the subsection were made of questions of consumption beliefs of nutritional foods and junk and processed foods before arrival and since arrival in Canada for analyzing and comparing consumption belief change difference of the foods between the sub-groups.

7. Health status change section:

Measurement of health status includes two main ways: self-reports of chronic conditions and self-reports of the general / overall status of one's health [Jasso 2004, Kennedy 2006]. The later way was used to examine immigrant health status for assessing their health status change. The designed questions in the section consisted of health status

questions before arrival and since arrival in Canada for analyzing and comparing health status change difference between the sub-groups.

8. Demographic questions section:

It should be to adopt the related demographic questions in some of questionnaires and to conservatively modify them to fit the research needs [Bradbrun 2004]. The demographic questions in the multicultural questionnaire came from a variety of sources, but primarily from the population surveys of Statistic Canada, the data of Health Canada, Ministry of Citizenship and Immigration in Canada and Canadian Government.

(1). Mother Tongue question:

Mother Tongue question was the most important question in the section. The response of mother tongue question could be used in identifying the influence of mother tongue on the lifestyle changes. The question was to ask mother tongue of the immigrant in the original country. Therefore, this question was designed to "Which is your mother tongue?".

(2). Question in Speaking Languages:

Some of the immigrants can speak other language(s) besides their mother tongue. The "other language(s)" could impact their lifestyles or lifestyle changes. The response of the question was important for identifying the influence of speaking languages on the lifestyle changes. The question was to ask the immigrant to be able to speak what language(s). Hence, this question was designed to "What language (s) can you speak?".

(3). Original Country question:

The response of original country question was important for identifying the immigrant, who was an English or French or Chinese speaking immigrant. The data of original country was helpful for identifying immigrant status and analyzing data. The question of original country was to ask what original country of the immigrant was. Thence, this question was designed to "What is your country of origin?".

(4). Age question:

Age question was a very critical question for identifying the influence of age on the lifestyle changes. The comparison between lifestyle changes of different age sub-groups was very significant for health research, practice and policy-making [CDC 2003].

There are various ways in which information on respondent age can be collected. One way is to ask for the age at a specific reference date; another is to ask for the actual birth date. Research has shown that the most accurate way to obtain information about age is to ask both date of birth and age at last birthday, such as "What is your age as of (DATE)?" or "What is your date of birth?" [Ross 1998, Bradbrun 2004]. A question of the actual birth date is more sensitive than that of the specific reference date, which can lead to lower response rate. Age question can be a sensitive question for the persons in some cultural group or sub-group. The age question should be to ask at which age sub-group the immigrant is. The question of specific reference date was designed in the question for high response rate. Accordingly, this question was designed to "Which age group do you fit into?".

(5). Gender question:

Gender question was a key question for comparing and analyzing gender difference of the survey results. The response of gender question could be used in identifying the influence of gender on the lifestyle changes. The gender question was to ask gender of the immigrant. Therefore, this question was designed to "What is your gender?".

(6). Marital Status question:

Marital status question was an important question in social and health survey. Marital status could be related to personal lifestyles or lifestyle changes [CDC 2003]. The response of marital status question could be used in identifying the influence of marital status on the lifestyle changes. The marital question was to ask current marital status of the immigrant. On that account, this question was designed to "What is your current marital status?".

(7). Question in Category of Immigration:

The question in category of immigration was a crucial question for analyzing immigrant survey data. Because of difference of socio-economic status, immigrants of different category could have different lifestyle changes. Data of lifestyle changes of different category sub-groups were very valuable for immigrant health survey. The question in category of immigration was to ask category of the immigrant. Consequently, this question was designed to "What is your visa category of immigration?".

(8). Question in Duration of Residence:

The question of "Duration of Residence" was an indispensable question. The response of the question was essential for identifying the influence of duration of residence on the lifestyle changes. The question was to ask duration of residence in Canada. Hence, this question was designed to "How long have you lived in Canada?".

(9). Education question:

Education question of was a necessary question. The people with different educational backgrounds could show different lifestyle patterns, because education may be related to lifestyle [CDC 2003, CDC 2008]. The response of education question was useful for identifying the influence of education on the lifestyle changes. The education question was to ask the highest level of education of the immigrant. Thence, this question was designed to "What is your highest level of education?".

(10). Employed Status question:

Employed status question was a vital question. The employed status of immigrants could be related closely to lifestyles changes. The response of employed status question was essential for identifying the influence of employed status on the lifestyle changes. The employed status question was to ask current employed status of the immigrant. Hence, this question was designed to "What is your current employment status?".

(11). Occupation question:

Occupation question was a fundamental question. The persons who have different occupations may show different lifestyles, because occupation could impact individual

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lifestyle or lifestyle change. The response of occupation question was helpful for identifying the influence of occupation on the lifestyle changes. The occupation question was to ask current primary occupation of the immigrant. Accordingly, this question was designed to "What is your current primary occupation?".

(12). Religion question:

Religion question was a vital question. Reglion could impact individual lifestyle. The response of religion question was helpful for identifying the influence of religion on the lifestyle changes. The religion question was to ask current religion of the immigrant. For that reason, this question was designed to "What is your current religion?".

(13). Income question:

Income question was a very sensitive and the most difficult demographic question to ask in survey research. Some people overreport their income because of a social desirability bias, and other people systematically underreport their income. The response of income question was essential for identifying the influence of income on the lifestyle changes. The income question was to ask total post-tax annual income of the immigrant in the past year. Consequently, this question was designed to "How much was your personal gross income (income before tax deduction) past year?".

Appendix 2

Analysis Result Table of Validity and Reliability of the Multicultural Lifestyle Change Questionnaire

Analysis Result Table of Validity and Reliability

Test-retest reliability Criterion-related validity			Internal consistency reliability Construct validity		
Item		*Pearson correlation coefficient (r)	Item		**Cronbach's alpha coefficients (α)
Independent variable	Dependent variable		Smoking change	Smoking behavior change	0.855
Gender	Smoking change	0.865			
	Alcohol consumption change	0.895		Smoking belief change	0.898
	Mood change	0.768	Alcohol consumption change	Alcohol consumption behavior change	0.892
	Sleep change	0.787			
	Physical activity change	0.908		Alcohol consumption belief change	0.928
	Dietary change	0.862	Mood change	Mood status change	0.733
	Health status change	0.695			
Mother tongue	Smoking change	0.869		Mood belief change	0.729
	Alcohol consumption change	0.855	Sleep change	Sleep behavior change	0.768
	Mood change	0.786		Sleep belief change	0.716
	Sleep change	0.776			

	Physical activity change	0.887	Physical activity change	Physical activity behavior change	0.721
	Dietary change	0.764			
	Health status change	0.687		Physical exercise belief change	0.695
Category of immigration	Smoking change	0.864			
	Alcohol consumption change	0.876	Dietary change	Dietary behavior change	0.662
	Mood change	0.768			
	Sleep change	0.776		Dietary belief change	0.718
	Physical activity change	0.868			
	Dietary change	0.786	Health status change		0.726
	Health status change	0.698			
Average (r̄)		0.811	Average (ᾱ)		0.772

Notes: *Pearson correlation coefficient r > 0.80; **Cronbach's alpha coefficients α > 0.70.

Appendix 3:

Modification of the Multicultural Lifestyle Change Questionnaire

The pilot-testing questionnaire was revised appropriately to the multicultural lifestyle change survey questionnaire. The main revisions included:

1. "Drinking alcohol" in response options of Sub-section 2.2: Alcohol consumption belief change at Section 2: Alcohol Consumption Change in the pilot-testing questionnaire was revised to "Excessive drinking of alcohol" in the multicultural lifestyle survey questionnaire.

2. The response options: "A. Less than an hour; B. 1 – 2 hour; C. 3 – 4 hours; D. 5 – 6 hours; E. More than 6 hours; F. Do not know" at Sub-section 5.1.1: Change of physical exercise time in Section 5: Physical Activity Change in the pilot-testing questionnaire were revised to the response options: "A. An hour or less; B. 2 – 3 hours; C. 4 – 5 hours; D. 6 – 7 hours; E. 8 hours or more; F. Do not know" in multicultural lifestyle survey questionnaire.

3. For more clear definition and accurate choice, the revisions in Section 6: Dietary Change included:

(1). "…Please _tick all boxes that apply or write your answer in the space provided_ in the response box below if applicable." in question 6.1.1.1., 6.1.1.2., 6.1.2.1. and 6.1.2.2. in the pilot-testing questionnaire was revised to "…Please _consider deeply every alternative before choice, tick all boxes (one or more boxes) that apply or write your answer in the space 'Other' provided_ in the response box below if applicable." in the multicultural lifestyle survey questionnaire.

(2). The notes – "The word 'increase' in the question asked refers to the increase of food type and food quantity. For example, if you did not eat 'eggs' before arrival in Canada, but you have eaten 'eggs' since arrival in Canada, you should choose 'f. Egg'; if you ate '4 eggs' before arrival in Canada on average each week, but you have eaten '7 eggs' since arrival in Canada on average each week, you should also choose 'f. Egg'" were added behind question 6.1.1.1. in the multicultural lifestyle survey questionnaire.

(3). The notes: "The word 'decrease' in the question asked refers to the decrease of food type and food quantity. For example, if you ate 'eggs' before arrival in Canada, but you have not eaten 'eggs' since arrival in Canada, you should choose 'f. Egg'; if you ate '4 eggs' before arrival in Canada on average each week, but you have eaten '2 eggs' since arrival in Canada on average each week, you should also choose 'f. Egg'" were added behind question 6.1.1.2. in the multicultural lifestyle survey questionnaire.

(4). The notes: "The word 'increase' in the question asked refers to the increase of food type and food quantity. For example, if you did not eat 'fatty' before arrival in Canada, but you have eaten 'fatty' since arrival in Canada, you should choose 'a. Fatty'; if you ate 'fatty 4 times' before arrival in Canada on average each week, but you have eaten 'fatty 7 times' since arrival in Canada on average each week, you should also choose 'a. Fatty'" were added behind question 6.1.2.1. in the multicultural lifestyle survey questionnaire.

(5). The notes: "The word 'decrease' in the question asked refers to the decrease of food type and food quantity. For example, if you ate 'fatty' before arrival in Canada, but you have not eaten 'fatty' since arrival in Canada, you should choose 'a. Fatty'; if you ate 'fatty 4 times' before arrival in Canada on average each week, but you have eaten 'fatty 2

times' since arrival in Canada on average each week, you should also choose 'a. Fatty'"

were added behind question 6.1.2.2. in the multicultural lifestyle survey questionnaire.

(6). The word: "seafood" at question 6.1.1. in the pilot-testing questionnaire was deleted;

the word: "beef" was added to the question in the multicultural lifestyle survey

questionnaire.

(7). The option: "d. Seafood" at question 6.1.1.1. and question 6.1.1.2. in the pilot-testing

questionnaire was deleted; the option: "b. beef" was added into the options of question

6.1.1.1. and question 6.1.1.2. in the multicultural lifestyle survey questionnaire.

4. Question 8.7: "What is your visa category of immigration?" and its options: "A.

Skilled immigrant; B. Business immigrant; C. Family immigrant; D. Other" at Section 8:

Demographic Questions in the pilot-testing questionnaire were revised respectively to

"What is your category of immigration?" and its options: "A. Skilled or business

immigrant of principal applicant category or single applicant category; B. Skilled or

business immigrant of spouse and dependent category (spouse or child of principal

applicant); C. Family class immigrant (family immigrant who immigrated to Canada

through marriage to a Canadian citizen or permanent resident, or family immigrant

sponsored by a close relative or family member who is a Canadian citizen or permanent

resident); E. Other" in the multicultural lifestyle survey questionnaire.

Meanwhile, the cover and back pages in the pilot-testing questionnaire questionnaire

were revised properly to those of the multicultural lifestyle change survey questionnaire.

1. The revisions of the cover page included:

(1). "You will receive \$20 after responding to the pilot-testing questionnaire twice." in the pilot-testing questionnaire questionnaire was revised to "You will receive \$20 after responding to the questionnaire once." in the multicultural lifestyle change questionnaire.

(2). "You are encouraged to respond to all the questions. You can always ask the principal researcher for help." in the pilot-testing questionnaire questionnaire was revised to "You are encouraged to respond all the questions. When you don't think any one of the answers really apply, mark the answer that comes closest to it. You can always ask this principal researcher for help" in the multicultural lifestyle change questionnaire.

2. The revision of the back page included:

"Thank you for taking the time to complete this questionnaire! Your insight and information are very valuable to us." in the pilot-testing questionnaire questionnaire was revised to "Thank you for taking the time to complete this questionnaire! Before sending the questionnaire back to us, please check that your answers do not appear accidentally errors. Your insight and information are very valuable to us in multicultural health research and making informed decision in Canada. We will use your feedback to improve future research!" in the multicultural lifestyle change questionnaire.

Appendix 4:

Methods and Strategies of Data Analysis

The General Frequency Distribution of the total sample was firstly calculated and presented in the General Frequency Distribution table. Then, the percentages of the total sample, the gender, language and category sub-groups in lifestyle changes and health status change were computed respectively. Chi-square tests were performed to test if there were significant differences between rates of the sub-groups in the changes. The results were presented in the tables of significant level. P value < 0.05 was considered significant at every process of analysis [Franks 1986, Guthrie 1991, Munro 2001].

Following the descriptive analysis, multivariate (correlation and regression) analysis was performed for identifying the relationship between dependent variables and independent variables. Correlation is a measure of strength of the relationship between two variables. [Dunn 1986, Cohen 2013, Kleinbaum 2013]. Regression analysis gives the degree of impact of the independent variable(s) on dependent variable(s) [Dunn 1986, Cohen 2013, Kleinbaum 2013]. Correlation analysis was performed to test whether there were a correlation between the independent variables of demography and the dependent variables of lifestyle changes and health status change. Then, multiple linear regression analysis was used to determine if the independent variables had significantly impacted the dependent variables. Pearson's coefficients r and p-value for correlation and regression analysis were respectively calculated and defined as r > 0.05 and p < 0.05.

Finally, factor analysis of the independent variables (Mother Tongue and Category of Immigration) and the dependent variables in Physical Activity Change and Dietary

Change was executed respectively to assess how many factors impacted significantly the changes. Factor analysis is particularly useful for examining the relationships between large numbers of variables, disentangling them and identifying clusters of variables that are closely linked together [Bowling 2001, Bryman 2004, McDowell 2006].

1. Smoking change analysis:

Smoking Change included Smoking Behavior Change and Smoking Belief Change. Smoking Behavior Change was identified based on the response choice for the smoking question – "Which of the following best describes you?". The options for the question were as follows: "A. You have never smoked cigarettes", "B. You smoked before arrival in Canada, but quit after arrival, "C. You did not smoke before arrival in Canada, but began to smoke drink alcohol before arrival", "D. If you smoked both before arrival and since arrival in Canada, go to 1.1.1.1. and question 1.1.1.2. below". The respondent was identified experiencing Smoking Behavior Change if option "B" or "C" was chosen.

Smoking quantities were identified according to the response choices for two questions of smoking quantity – "In the last year before arrival in Canada, on average, how many cigarettes did you smoke each day?" (question one) and "In the past year in Canada, on average, how many cigarettes did you smoke each day?" (question two). The options for both of the two questions were as follows: "a. 1 – 10 (less than one pack)", "b. 11 – 20 (one pack)", "c. 21 – 40 (two packs)", "d. 41 or more (more than two packs)", "e. Do not know". The respondent was also identified experiencing Smoking Behavior Change if there were different choices in the options of two questions except option "e" (i.e. picking option "a" for question one and option "b" for question two).

Smoking Belief Change was identified based on the response choices for two smoking belief questions – "Before arrival in Canada, which of these statements best describes your belief with regards to smoking cigarettes?" (question one) and "Since arrival in Canada, which of these statements best describes your belief with regards to smoking cigarettes?" (question two). The options for both of the two questions were as follows: "A. Smoking cigarettes is **extremely bad** for health", "B. Smoking cigarettes of alcohol is **very bad** for health", "C. Smoking cigarettes of alcohol is **bad** for health", "D. Smoking cigarettes is **somewhat bad** for health", "E. Smoking cigarettes is **less than somewhat bad** for health", "F. Smoking cigarettes is **not bad** for health", "G. Do not know". The respondent was identified experiencing Smoking Belief Change if there were different choices in the options of two questions except option "G" (i.e. picking option "A" for question one and option "B" for question two).

1.1. Percentages:

Percentages in smoking were calculated respectively and presented in the table, which included Smoking Rate, Smoking Rate Before Immigration, Smoking Rate After Immigration, Smoking Change Rate, Smoking Belief Change Rate in the total sample, and the gender, language and category sub-groups.

1.2. Significance analysis:

Significant levels between the rates of different sub-groups in smoking were analyzed statistically. The results were presented in the table.

1.3. Multivariate analysis - correlation and regression analysis:

Correlation analysis was performed to test if there were correlation between the independent variables - Mother Tongue, Age, Gender, Category of Immigration, Duration of Residence in Canada and the dependent variables – Smoking Change (Smoking Behavior Change + Smoking Belief Change) and Smoking Behavior Change. Meanwhile, multiple linear regression analysis was conducted to test if the above independent variables had significantly impacted the above dependent variables. The results of multivariate analysis were presented in the table.

2. Alcohol consumption change analysis:

Drinking Change included Drinking Behavior Change and Drinking Belief Change. Drinking Behavior Change was identified based on the response choice for the drinking question – "Which of the following best describes you?". The options for the question were as follows: "A. You have never drunk alcohol (including any alcoholic beverage)", "B. You drank alcohol before arrival in Canada, but quit after arrival, "C. You did not drink alcohol before arrival in Canada, but began to drink alcohol after arrival", "D. If you drank alcohol both before arrival and since arrival in Canada, go to 2.1.1.1. and question 2.1.1.2. below". The respondent was identified experiencing Drinking Behavior Change if option "B" or "C" was chosen.

Drinking quantities before and after immigration were identified according to the response choices for two questions of drinking quantity – "In the last year before arrival in Canada, on average, how much alcohol (beer, wine) did you drink each day?" (question one) and "In the past year in Canada, on average, how much alcohol (beer, wine) did you drink each day?" (question two). The options for both of the two questions

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were as follows: "a. 1/2 bottle of beer or less, or a glass of wine or less", "b. 1 – 1.5 bottles of beer, or 2 – 3 glasses of wine", "c. 2 – 3 bottles of beer, or 4 – 6 glasses of wine", "d. 4 bottles of beer or more, or 7 – 8 glasses of wine or more", "e. Do not know". The respondent was also identified experiencing Drinking Behavior Change if there were different choices in the options of two questions except option "e" (i.e. picking option "a" for question one and option "b" for question two).

Drinking Belief Change was identified based on the response choices for two drinking belief questions – "Before arrival in Canada, which of these statements best describes your belief with regards to drinking alcohol?" (question one) and "Since arrival in Canada, which of these statements best describes your belief with regards to drinking alcohol?" (question two). The options for both of the two questions were as follows: "A. Excessive drinking of alcohol is **extremely bad** for health", "B. Excessive drinking of alcohol is **very bad** for health", "C. Excessive drinking of alcohol is **bad** for health", "D. Excessive drinking of alcohol is **somewhat bad** for health", "E. Excessive drinking of alcohol is **less than somewhat bad** for health", "F. Excessive drinking of alcohol is **not bad** for health", "G. Do not know". The respondent was identified experiencing Drinking Belief Change if there were different choices in the options of two questions except option "G" (i.e. picking option "A" for question one and option "B" for question two).

2.1. Percentages:

Percentages in drinking were calculated respectively and presented in the table, which included Drinking Rate, Drinking Rate Before Immigration, Drinking Rate After

Immigration, Drinking Change Rate, Drinking Belief Change Rate in the total sample, and the gender, language and category sub-groups.

2.2. Significance analysis:

Significant levels between the rates of different sub-groups in drinking were analyzed statistically. The results were presented in the table.

2.3. Multivariate analysis - correlation and regression analysis:

Correlation analysis was performed to test if there were correlation between the independent variables - Mother Tongue, Age, Gender, Category of Immigration, Duration of Residence in Canada and the dependent variables – Drinking Change (Drinking Behavior Change + Drinking Belief Change) and Drinking Behavior Change. In the meantime, mmultiple linear regression analysis was conducted to test if the above independent variables had significantly impacted the above dependent variables. The results of multivariate analysis were presented in the table.

3. Mood change analysis:

Mood Change included Mood Status Change and Mood Belief Change. Mood Status Change was identified based on the response choices for two questions - "Before arrival in Canada, how would you describe your overall mood status?" (question one) and "Since arrival in Canada, how would you describe your overall mood status" (question two). The options for both of the two questions were as follows: "A. Very relaxed", "B. Relaxed", "C. Somewhat relaxed", "D. Neutral (neither relaxed nor anxious)", "E. Somewhat anxious", "F. Anxious", "G. Very anxious", and "H. Do not know". The respondent was

identified experiencing Mood Status Change if there were different choices in the options of two questions except option "H" (i.e. picking option "A" for question one and option "B" for question two). Meanwhile, the respondent was identified experiencing Mood Status Improvement if choosing option "C" for question one and option "B" or "A" for question two. On the contrary, the respondent was identified experiencing Mood Status Decline if choosing option "C" for question one and option "D" or "E" for question two.

Mood Belief Change was identified according to the response choices for two Mood Belief questions - "Before arrival in Canada, which of these statements best described your belief with regards to anxiety?" (question one) and "Since arrival in Canada, which of these statements best describes your belief with regards to anxiety?" (question two). The options for both of the two questions were as follows: "A. Anxiety affects **extremely negatively** health", "B. Anxiety affects **very negatively** health", "C. Anxiety affects **negatively** health", "D. Anxiety affects **somewhat negatively** health", "E. Anxiety affects **less than somewhat negatively** health", "F. Anxiety does **not** affect **negatively** health", and "G. Do not know". The respondent was identified experiencing Mood Belief Change if there were different choices in the options of two questions except option "H" (i.e. picking option "A" for question one and option "B" for question two).

3.1. Percentages:

Percentages in mood change were calculated respectively and presented in the table, which included Mood Status Change Rates, Mood Status Improving Rate, Mood Status Declining Rate, and Mood Belief Change Rate in the total sample, and the gender, language and category sub-groups.

3.2. Significance analysis:

Significant levels between rates of different sub-groups in mood change were analyzed statistically. The results were presented in the table.

3.3. Multivariate analysis - correlation and regression analysis:

Correlation analysis was performed to test if there were correlation between the independent variables - Mother Tongue, Speaking Languages, Gender, Marital Status, Category of Immigration, Highest Level of Education, Employment Status and Income, and the dependent variables – Mood Change (Mood Status Change + Mood Belief Change) and Mood Status Change. Meanwhile, multiple linear regression analysis was conducted a to test if the above independent variables had significantly impacted the above dependent variables. The results of multivariate analysis were presented in the table.

4. Sleep change analysis:

Sleep Change consists of Sleep Behavior Change (Sleep Time Change and Sleep Quality Change) and Sleep Belief Change. Sleep Time Change was identified based on the response choices for two sleep time questions – "Before arrival in Canada, on average, how many hours of sleep did you get **each day**?" (question one) and "Since arrival in Canada, on average, how many hours of sleep do you get **each day**?" (question two). The options for both of the two questions were as follows: "A. 6 hours or less", "B. 7 – 8 hours", "C. 9 hours", "D. 10 hours or more" and "E. Do not know". The respondent was identified experiencing Sleep Time Change if there were different choices in the

options of two questions except option "E (i.e. picking option "A" for question one and option "B" for question two). Meanwhile, the respondent was identified experiencing Sleep Time Increase if choosing option "C" for question one and option "D" for question two. On the contrary, the respondent was identified experiencing Sleep Time Decrease if choosing option "C" for question one and option "B" or "A" for question two.

Sleep Quality Change was identified according to the response choices for two sleep quality questions – "Before arrival in Canada, how was your quality of sleep **each day**?" (question one) and "Since arrival in Canada, how is your quality of sleep **each day**?" (question two). The options for both of the two questions were as follows: "A. Excellent", "B. Very good", "C. Good", "D. Fair (neither good nor bad)", "E. Bad", "F. Very bad, "G. Extremely bad" and "H. Do not know". The respondent was identified experiencing Sleep Quality Change if there were different choices in the options of two questions except option "H" (i.e. picking option "A" for question one and option "B" for question two). Meanwhile, the respondent was identified experiencing Sleep Quality Improvement if choosing option "C" for question one and option "B" or "A" for question two. On the contrary, the respondent was identified experiencing Sleep Quality Decline if choosing option "C" for question one and option "D" or "E" for question two.

Sleep Belief Change was identified based on the response choices for two sleep belief questions – "Before arrival in Canada, which of these statements best describes your belief with regards to sleep?" (question one) and "Since arrival in Canada, which of these statements best describes your belief with regards to sleep?" (question two). The options for both of the two questions were as follows: "A. Daily high quality sleep of 7-8 hours **contributes extremely** to health", "B. Daily high quality sleep of 7-8 hours **contributes**

greatly to health", "C. Daily high quality sleep of 7-8 hours **contributes** to health", "D. Daily high quality sleep of 7-8 hours **contributes somewhat** to health", "E. Daily high quality sleep of 7-8 hours **contributes less than somewhat** to health", " F. Daily high quality sleep of 7-8 hours does **not contribute** to health" and "G. Do not know". The respondent was identified experiencing Sleep Belief Change if there were different choices in the options of two questions except option "G" (i.e. picking option "A" for question one and option "B" for question two).

4.1. Percentages:

Percentages in sleep change were calculated respectively and presented in the table, which included Sleep Time Change Rates, Sleep Time Increasing Rates and Sleep Time Decreasing Rates, Sleep Quality Change Rates, Sleep Quality Improving Rates, Sleep Quality Declining Rates, and Sleep Time Belief Change Rates in the total sample, and the gender, language and category sub-groups.

4.2. Significance analysis:

Significant levels between the rates of different sub-groups in sleep change were analyzed statistically. The results were presented in the table.

4.3. Multivariate analysis - correlation and regression analysis:

Correlation analysis was performed to test if there were correlation between the independent variables - Mother Tongue, Age, Gender, Category of Immigration, Employment Status and Primary Occupation, and the dependent variables – Sleep

Change (Sleep Behavior Change + Sleep Belief Change) and Sleep Behavior Change. In the meantime, multiple linear regression analysis was conducted to test if the above independent variables had significantly impacted the above dependent variables. The results of multivariate analysis were presented in the table.

5. Physical activity change analysis:

Physical Activity Change included Physical Activity Behavior Change (Physical Exercise Time Change, Physical Activity Level Change and Physical Exercise Item Number Change) and Physical Activity Belief Change. Physical Exercise Time Change was identified based on the response choices for two questions – "Before arrival in Canada, on average, how much physical exercise did you do **each week**?" (question one) and "Since arrival in Canada, on average, how much physical exercise do you do **each week**?" (question two). The options for both of the two questions were as follows: "A. An hour or less", "B. 2 – 3 hours", "C. 4 – 5 hours", "D. 6 – 7 hours", "E. 8 hours or more" and "F. Do not know". The respondent was identified experiencing Physical Exercise Time Change if there were different choices in the options of two questions except option "F" (i.e. picking option "A" for question one and option "B" for question two). Meanwhile, the respondent was identified experiencing Physical Exercise Time Increase if choosing option "A" for question one and option "B" or "C" for question two. On the contrary, the respondent was identified experiencing Physical Exercise Time Decrease if picking option "C" for question one and option "B" or "A" for question two.

Physical Activity Level Change was identified according to the response choices for two questions – "Before arrival in Canada, which of these descriptions best represents

your physical activity level of **a day**?" (question one and "Since arrival in Canada, which of these descriptions best represents your physical activity level of **a day**?" (question two). The response options for both of the two questions were as follows: "A. Very light", "B. Light", "C. Moderate", "D. Moderate heavy", "E. Heavy" and "F. Do not know". The respondent was identified experiencing Physical Activity Level Change if there were different choices in the options of two questions except option "F" (i.e. picking option "A" for question one and option "B" for question two). Meanwhile, the respondent was identified experiencing Physical Activity Level Increase if choosing option "A" for question one and option "B" or "C" for question two. On the contrary, the respondent was identified experiencing Physical Activity Level Decrease if choosing option "C" for question one and option "B" or "A" for question two.

Physical Exercise Item Number Change was identified according to the response choices for two questions – "Before arrival in Canada, which physical exercises did you take part in **each week**?" (question one) and "Since arrival in Canada, which physical exercises do you take part in **each week**?" (question two). The checklist options of 18 Physical Exercise Items for both of the two questions were as follows: "A. Walking", "B. Jogging/Running", "C. Biking", "D. Hiking", "E. Skiing", "F. Skating", "G. Soccer", "H. Basketball", "I. Hockey", "J. Tennis", "K. Table tennis", "L. Badminton", "M. Swimming", "N. Yoga", "O. Chinese TaiJiQuan/QiGong", "P. Fitness exercises", "Q. Other", and "R. No exercise". The respondent was identified experiencing Physical Exercise Item Number Change if there were the choices of different exercise items in the options of two questions. Meanwhile, the respondent was identified experiencing Physical Exercise Item Number Increase if there were more exercise items chosen in the

options of question two than in the options of question one. On the contrary, the respondent was identified experiencing Physical Exercise Item Number Decrease if there were less exercise items chosen in the options of question two than in the options of question one.

Physical Activity Belief Change was identified based on the response choices for two physical activity belief questions – "Before arrival in Canada, which of these statements best describes your belief with regards to physical exercise?" (question one) and "Since arrival in Canada, which of these statements best describes your belief with regards to physical exercise?" (question two). The options for both of the two questions were as follows: "A. The above mentioned exercises can **very strongly promote** health", "B. The above mentioned exercises can **strongly promote** health", "C. The above mentioned exercises can **promote** health", "D. The above mentioned exercises can **somewhat promote** health", "E. The above mentioned exercises can **less than somewhat promote** health", "F. The above mentioned exercises can **not promote** health" and "G. Do not know". The respondent was identified experiencing Physical Activity Belief Change if there were different choices in the options of two questions except option "H" (i.e. picking option "A" for question one and option "B" for question two).

5.1. Percentages:

Percentages in physical activity change were calculated respectively and presented in the tables, which included Physical Exercise Time Change Rate, Physical Exercise Time Increasing Rate and Physical Exercise Time Decreasing Rate; Physical Activity Level Change Rate, Physical Activity Level Increasing Rate and Physical Activity Level

Decreasing Rate; Physical Exercise Item Number Change Rate, Physical Exercise Item

Number Increasing Rate and Physical Exercise Item Number Decreasing Rate; and

Physical Exercise Belief Change Rate in the total sample, and the gender, language and

category sub-groups; Physical Exercise Item Rate after Immigration in Canada in the

total sample and the language sub-groups.

5.2. Significance analysis:

Significant levels between the rates of different sub-groups in physical activity change

and between physical exercise item rates after immigration for different language sub-

groups was analyzed statistically. The results were presented in the table.

5.3. Multivariate analysis - correlation and regression analysis:

Correlation analysis was performed to test if there were correlation between the

independent variables - Mother Tongue, Age, Gender, Category of Immigration,

Employment Status, Primary Occupation and the dependent variables – Physical Activity

Change (Physical Activity Behavior Change + Physical Activity Belief Change) and

Physical Activity Behavior Change. Meanwhile, multiple linear regression analysis was

conducted to test if the above independent variables had significantly impacted the above

dependent variables. The results of multivariate analysis were presented in the table.

5.4. Factor analysis:

Factor analysis for two independent variables (Mother Tongue and Category of

Immigration) to four dependent variables (Physical Exercise Time, Physical Activity

Level, Physical Exercise Items and Physical Exercise Belief Change) was performed

respectively for assessing factors to impact significantly Physical Activity Change. The results were presented in the table and the figures.

6. Dietary change analysis:

Dietary Change included Dietary Behavior Change and Dietary Belief Chief Change. Dietary behavior change contained Consumption Changes of Nutritional Foods and Junk and Processed Foods, Increasing and Decreasing Consumption of Nutritional Foods and Junk and Processed Foods. Dietary Belief Change comprised Belief Change of Nutritional Food and Junk and Processed Food Consumption.

(1). Consumption changes of nutritional foods and junk and processed foods:

The consumption changes of nutritional foods and junk and processed foods were identified based on the response choice of of questions in consumption of nutritional foods and junk and processed foods. The question of consumption of nutritional foods was: "Since arrival in Canada, did your consumption of the **nutritional foods** (i.e. lean meat, fish, chicken, seafood, egg, fresh fruit and vegetable, etc) change **each week**?". The single-choice options for the question were as follows: "A. Changed, go to questions below", "B. Not changed", "C. Do not know". The respondent was identified experiencing nutritional food change if choosing option "A". The question of consumption of junk and processed foods was: "Since arrival in Canada, did your consumption of the **junk and processed foods** (i.e. fat meat, fried foods, canned foods, high-sugar fruit juices, etc.) change **each week**?". The single-choice options for the question were as follows: "A. Changed, go to questions below", "B. Not changed", "C.

Do not know". The respondent was identified experiencing junk and processed food change if choosing "A".

(2). Increasing and decreasing consumption of different nutritional foods:

Increasing and decreasing consumption of nutritional foods were identified according to the response choice for two questions – "Since arrival in Canada, which **nutritional foods** did you <u>**increase**</u> consuming <u>**each week**</u>?" and "Since arrival in Canada, which **nutritional foods** did you <u>**decrease**</u> consuming <u>**each week**</u>?". The checklist options of 21 nutritional foods for both of the two questions were as follows: "a. Lean meat", "b. Beef", "c. Chicken", "d. Fish", "e. Shrimp", "f. Egg", "g. Honey", "h. Low-fat milk", "i. Yogurt", "j. Tofu", "k. Rice", "l. Pastes", "m. Oatmeal", "n. Maize", "o. Potato", "p. Sweet potato", "q. Fresh vegetable", "r. Fresh fruit", "s. Natural fruit juices", "t. Tea" and "u. Other".

(3). Increasing and decreasing consumption of different junk and processed foods:

Increasing and decreasing consumption of junk and processed foods were identified according to the response choice for two questions – "Since arrival in Canada, which **junk and processed foods** did you <u>**increase**</u> consuming <u>**each week**</u>?" and "Since arrival in Canada, which **junk and processed foods** did you <u>**decrease**</u> consuming <u>**each week**</u>?". The checklist options of 14 junk and processed foods for both of the two questions were as follows: "a. Fatty", "b. Fried foods", "c. Pickled vegetable", "d. Salted meat", "e. Sausage and dried meat", "f. Chips, biscuits, instant noodles", "g. Canned foods", "h. High-sugar cakes and desserts", "i. Candy and chocolate bars", "j. Soft drinks and colas",

"k. High-sugar fruit juices", "l. Ice cream and popsicle", "m. Coffee with sugar" and "n. Others".

(4). Belief change in nutritional food and junk and processed food consumption:

Dietary Belief Change was identified according to the response choices of questions of nutritional food belief change and junk and processed food belief change. The questions of nutritional food belief change included question one - "Before arrival in Canada, which of these statements best describes your belief with regards to nutritional foods?", and question two -"Since arrival in Canada, which of these statements best describes your belief with regards to nutritional foods?". The options for both of the two questions were as follows: "A. The above mentioned nutritional foods can **very strongly promote** health", "B. The above mentioned nutritional foods **strongly promote** health", "C. The above mentioned nutritional foods **promote** health", "The above mentioned nutritional foods **somewhat promote** health". "E. The above mentioned nutritional foods **less than somewhat promote** health", "**F.** The above mentioned nutritional foods **not promote** health", "**G.** Do not know". The questions of junk and processed food belief change included question one - "Before arrival in Canada, which of these statements best described your belief with regards to junk and processed food?", and question two - "Since arrival in Canada, which of these statements best describes your belief with regards to junk and processed foods?". The options for both of the two questions were as follows: "A. The above mentioned junk and processed foods have **very strongly adverse effects** on health", "B. The above mentioned junk and processed foods **strongly adverse effects** on health", "C. The above mentioned junk and processed foods **adverse effects**

on health", "D. The above mentioned junk and processed foods **somewhat adverse effects** on health", "E. The above mentioned junk and processed foods **less than somewhat adverse effects** on health", "F. The above mentioned junk and processed foods **no adverse effect** on health", "G. Do not know". The respondent was identified experiencing nutritional food change belief and/or junk and processed food change belief if there were different choices in the options of two questions except option "G" (i.e. picking option "A" for question one and option "B" for question two).

6.1. Percentages:

Percentages of the total sample, and the gender, language and category sub-groups in dietary change were respectively calculated and presented in the tables, which included (1) Rates in Consumption Changes of Nutritional Foods and Junk and Processed Foods, (2) Increasing and Decreasing Consumption Rates in Different Nutritional Foods, (3) Increasing and Decreasing Consumption Rates in Different Junk and Processed Foods, & (4) Belief Change Rates in Nutritional Food and Junk and Processed Food Consumption.

6.2. Significance analysis:

Significant levels between the rates of different sub-groups in dietary change were analyzed statistically. The results were presented in the table.

6.3. Multivariate analysis - correlation and regression analysis:

Correlation analysis was performed to test if there were correlation between the independent variables - Mother Tongue, Speaking Languages, Age, Gender, Category of

Immigration, Primary Occupation, Religion and Income, and the dependent variables –

Dietary Change (Dietary Behavior Change + Dietary Belief Change) and Dietary

Behavior Change. In the meantime, multiple linear regression analysis was conducted to

test if the above independent variables had significantly impacted the above dependent

variables. The results of multivariate analysis were presented in the table.

6.4. Factor analysis:

Factor analysis for two independent variables (Mother Tongue and Category of

Immigration) to four dependent variables (Nutritional Food Consumption Change, Junk

and Processed Food Consumption Change, and Dietary Belief Change) was performed

respectively for assessing factors to impact significantly Dietary Change. The results

were presented in the table and the figures.

7. Health status change analysis:

Health Status Change was identified based on the response choice for two health

status questions before and after immigration, which included question one - "Before

arrival in Canada, how would you estimate your overall health status?" and question two

- "Since arrival in Canada, how would you estimate your overall health status?". The

options for both of the two questions were as follows: "A. Excellent", "B. Very good",

"C. Good", "D. Fair (neither good nor poor)", "E. Poor", "F. Very poor", "G. Extremely

poor", "H. Do not know". The respondent was identified experiencing Health Status

Change if there were different choices in the options of two questions except option "H"

(i.e. picking option "A" for question one and option "B" for question two). Meanwhile,

the respondent was identified experiencing Health Status Improvement if choosing option

"C" for question one and option "B" or "A" for question two. On the contrary, the respondent was identified experiencing Health Status Decline if choosing option "C" for question one and option "D" or "E" for question two.

7.1. Percentages:

Percentages in health status change were computed respectively and presented in the table, which included Health Status Change Rate, Health Status Improving Rate and Health Status Declining Rate in the total sample, and the gender, language and category sub-groups.

7.2. Significance analysis:

Significant levels between the rates of different sub-groups in health status change were analyzed statistically. The results were presented in the table.

7.3. Multivariate analysis: correlation and regression analysis:

Correlation analysis was performed to test if there were correlation between the independent variables - Mother Tongue, Age, Gender, Category of Immigration, Duration of Residence, Employment Status, Primary Occupation, Religion, Income and the dependent variable - Health Status Change. Meanwhile, Multiple linear regression analysis was conducted to test if the above independent variables had significantly impacted the above dependent variable. The results of multivariate analysis were presented in the table.

Appendix 5

Tables and Figures of Multicultural Lifestyle Change Survey Results

Appendix 5.1. General Frequency Distribution Table of Total Sample (page 400)

Appendix 5.2: Tables in Smoking (page 406)

Appendix 5.3: Tables in Alcohol Consumption (page 409)

Appendix 5.4: Tables in Mood Change (page 412)

Appendix 5.5: Tables in Sleep Change (page 414)

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Appendix 5.7: Tables and Figures in Dietary Change (page 421)

Appendix 5.8: Tables in Health Status Change (page 430)

Table 5.1. General Frequency Distribution of Total Sample

Item	Frequency	Percent
Which is your mother tongue?		
English	278	34.3
French	268	33.1
Chinese	264	32.6
What language (s) can you speak?		
English	586	72.3
French	316	39.0
Chinese	265	32.7
Other	158	19.5
What is your country of origin?		
Australia	5	.6
Bahamas	14	1.7
Belgium	8	1.0
Belize	18	2.2
Benin	2	.2
Botswana	2	.2
Burkina Faso	4	.5
Burundi	11	1.4
Cameroon	25	3.1
Central Africa	4	0.5
Chad	2	0.2
China	223	27.5
Comoros	2	0.2
Congo	54	6.7
Cook Islands	1	0.1

Côte D'ivoire	14	1.7
Djibouti	5	.6
Fiji	1	.1
France	15	1.9
French G	1	.1
French M	1	.1
French N	1	.1
French P	2	.2
Gabon	5	.6
Ghana	21	2.6
Grenada	1	.1
Guinea	5	.6
Guinea-B	2	.2
Guyana	10	1.2
Haiti	53	6.5
Hong Kong	22	2.7
Ireland	9	1.1
Jamaica	2	.2
Kenya	6	.7
Lesotho	1	.1
Liberia	4	.5
Luxembourg	2	.2
Macao	7	.9
Madagascan	3	.4
Malawi	1	.1
Mali	6	.7
Marshall Islands	2	.2
Microns	5	.6

Namibia	2	.2
New Zealand	5	.6
Niger	2	.2
Nigeria	21	2.6
Papua New Guinea	1	.1
Rwanda	7	.9
Saint Li	1	.1
Saint Vi	1	.1
Samoa	2	.2
Senegal	15	1.9
Seychelles	3	.4
Sierra Leone	1	.1
Solomon	1	.1
South Africa	24	3.0
Sudan	1	.1
Suriname	17	2.1
Switzerland	11	1.4
Taiwan	12	1.5
Tanzania	1	.1
Togo	3	.4
Trinidad	1	.1
Uganda	8	1.0
UK	15	1.9
USA	45	5.6
Vanuatu	7	.9
Zambia	2	.2
Zimbabwe	17	2.1
Zambia	2	.2

Which age group do you fit into?		
18 – 24 years	228	28.1
25 – 34 years	105	13.0
35 – 44 years	132	16.3
45 – 54 years	167	20.6
55 – 64 years	84	10.4
65 – 74 years	73	9.0
75 – 84 years	21	2.6
What is your gender?		
Men	411	50.7
Women	399	49.3
What is your current marital status?		
Married	455	56.2
Co-habiting	23	2.8
Divorced	26	3.2
Widow / widower	24	3.0
Separated	27	3.3
Single (never married)	236	29.1
Would rather not say	19	2.3
What is your category of immigration?		
Skilled or business immigrant of principal applicant category	193	23.8
Skilled or business immigrant of spouse and dependent category	193	23.8
Family class immigrant	354	43.7
Other	70	8.6
How long have you lived in Canada?		
1 year or near 1 year	45	5.6

2 – 5 years	282	34.8
6 – 10 years	257	31.7
11 – 20 years	169	20.9
21 years or over	56	6.9
What is your highest level of education?		
No schooling	6	.7
Primary school	31	3.8
Secondary school	159	19.6
Professional training	110	13.6
College	213	26.3
University	214	26.4
Post-graduate	77	9.5
What is your current employment status?		
Employed full-time	289	35.7
Employed part-time	223	27.5
Employer or self-employed	27	3.3
Retired	79	9.8
Unpaid work	13	1.6
Unemployed	179	22.1
What is your current primary occupation?		
Manager or administrator	61	7.5
Professional	118	14.6
Laborer or farmer	291	35.9
Student	213	26.3
Volunteer	3	.4
Other	5	.6
No occupation	119	14.7
What is your current religion?		

Buddhism	48	5.9
Christianity	327	40.4
Islam	88	10.9
Judaism	3	.4
Other	11	1.4
No religion	333	41.1
How much was your personal gross income (income before tax deduction) past year?		
Less than $30,000	456	56.3
$30,000 – $49,999	176	21.7
$50,000 – $69,999	91	11.2
$70,000 – $99,999	19	2.3
$100,000 or more	6	.7
Do not know	62	7.7

5.2. Tables in Smoking

Table 5.2.1. Percentages of Total Sample and Sub-groups in Smoking

The percentages rates in smoking were calculated as: Smoking Rate = smoking subjects before immigration + smoking subjects after immigration + smoking subjects both before immigration and after immigration / sampled subjects x 100%; Smoking Rate Before Immigration = smoking subjects before immigration / sampled subjects x 100%; Smoking Rate After Immigration = smoking subjects after immigration / sampled subjects x 100%; Smoking Change Rate = subjects of increasing and decreasing cigarette consumption after immigration / sampled subjects x 100%; Smoking Belief Change Rate = subjects of Smoking Belief Change after immigration / sampled subjects x 100%.

Item		Smoking				
		Smoking Rate %	Smoking Rate Before Immigration %	Smoking Rate After Immigration %	Smoking Behavior Change — Smoking Change Rate %	Smoking Belief Change — Smoking Belief Change Rate %
Total sample (810)		46.05	33.58	36.30	29.14	44.94
Gender sub-groups	Immigrant men (411)	59.61	43.80	48.91	36.01	51.58
	Immigrant women (399)	32.08	23.06	23.31	22.06	38.10
Language sub-groups	English immigrants (278)	54.32	26.98	48.92	29.86	46.40
	French immigrants (268)	36.94	27.99	28.36	24.63	30.97
	Chinese immigrants (264)	46.59	36.74	31.06	32.96	57.58
Category sub-groups	Principal Applicant immigrants (193)	52.33	43.01	41.45	29.02	53.37
	Spouse and Dependent immigrants (193)	41.62	27.41	31.98	29.44	41.62
	Family Class immigrants (354)	44.35	30.79	34.46	28.81	45.20
	Refugee immigrants (70)	47.14	37.14	41.43	28.57	27.14

Table 5.2.2. Significance Level of Rates of Sub-groups in Smoking

Item	Chi-square	p-value	Significant Difference
Rates of male and female immigrant sub-groups in smoking	10.000	0.350	No
Rates of English, French and Chinese immigrant sub-groups in smoking	30.000	0.363	No
Rates of Principal Applicant, Spouse and Dependent, Family Class, Other/Refugee immigrant sub-groups in smoking	60.000	0.267	No

Notes: Significance level: p < 0.05

Table 5.2.3. Multivariate Analysis in Smoking

Correlation Analysis					Multiple Linear Regression Analysis			
Dependent Variable	Independent Variable	Pearson's r	p-value	Correlation between Independent Variable and Dependent Variable	Dependent Variable	Independent Variable	p-value	Impact of Independent Variable on Dependent Variable
Smoking Change (Smoking Behavior Change + Smoking Belief Change)	Age	0.155	0.000	Positive Correlation	Smoking Change (Smoking Behavior Change + Smoking Belief Change)	Age	0.001	Significant Impact
	Duration of Residence in Canada	0.186	0.000	Positive Correlation		Gender	0.000	Significant Impact
	Gender	-0.217	0.000	Negative Correlation		Duration of Residence in Canada	0.020	Significant Impact
	Category of Immigration	-0.089	0.011	Negative Correlation				

Smoking Behavior Change	Age	0.121	0.001	Positive Correlation	Smoking Behavior Change	Age	0.007	Significant Impact
	Duration of Residence in Canada	0.134	0.000	Positive Correlation				
	Mother Tongue	-0.114	0.001	Negative Correlation		Gender	0.000	Significant Impact
	Gender	-0.283	0.000	Negative Correlation				

Notes: Correlation: r > 0.05; Significance level: p < 0.05

5.3: Tables in Alcohol Consumption

Table 5.3.1. Percentages of Total Sample and Sub-group in Drinking

The percentages in drinking were calculated as: Drinking Rate = drinking subjects before immigration + drinking subjects after immigration + drinking subjects both before immigration and after immigration / sampled subjects x 100%; Drinking Rate Before Immigration = drinking subjects before immigration / sampled subjects x 100%; Drinking Rate After Immigration = drinking subjects after immigration / sampled subjects x 100%; Drinking Change Rate = subjects of increasing and decreasing alcohol consumption after immigration / sampled subjects x 100%; Drinking Belief Change Rate = subjects of drinking belief change after immigration / sampled subjects x 100%.

Item		Alcohol Consumption / Drinking				
		Drinking Rate %	Drinking Rate Before Immigration %	Drinking Rate After Immigration %	Drinking Behavior Change / Drinking Change Rate %	Drinking Belief Change / Drinking Belief Change Rate %
Total sample (810)		50.25	39.14	43.21	29.75	37.41
Gender sub-groups	Immigrant men (411)	65.94	51.09	59.61	39.42	43.07
	Immigrant women (399)	34.34	26.82	26.07	19.05	31.58
Language sub-groups	English immigrants (278)	47.12	30.94	41.01	28.78	27.34
	French immigrants (268)	61.19	47.76	51.87	35.45	45.52
	Chinese immigrants (264)	42.80	38.43	35.99	23.49	39.77
Category sub-groups	Principal Applicant immigrants (193)	63.21	55.96	55.96	32.12	41.97
	Spouse and Dependent immigrants (193)	39.38	26.94	34.20	22.80	34.20
	Family Class immigrants (354)	47.18	35.88	40.11	29.94	36.16
	Refugee immigrants (70)	61.43	42.86	47.14	37.14	40.00

Table 5.3.2. Significance Level of Rates of Sub-groups in Drinking

Item	Chi-square	p-value	Significant Difference
Rates of male and female immigrant sub-groups in drinking	11.000	0.358	No
Rates of English, French and Chinese immigrant sub-groups in drinking	30.000	0.363	No
Rates of Principal Applicant, Spouse and Dependent, Family Class, Other/Refugee immigrant sub-groups in drinking	60.000	0.182	No

Notes: Significance level: $p < 0.05$

Table 5.3.3. Multivariate Analysis in Drinking

Correlation Analysis					Multiple Linear Regression Analysis			
Dependent Variable	Independent Variable	Pearson's r	p-value	Correlation between Independent Variable and Dependent Variable	Dependent Variable	Independent Variable	p-value	Impact of Independent Variable on Dependent Variable
Drinking Change (Drinking Behavior Change + Drinking Belief Change)	Mother Tongue	0.127	0.000	Positive Correlation	Drinking Change (Drinking Behavior Change + Drinking Belief Change)	Mother Tongue	0.000	Significant Impact
	Gender	-0.238	0.000	Negative Correlation		Gender	0.000	Significant Impact
	Gender	0.121	0.001	Negative Correlation		Gender	0.000	Significant Impact

Drinking Behavior Change	Category of Immigration	-0.086	0.014	Negative Correlation	Drinking Behavior Change			

Notes: Correlation: r > 0.05; Significance level: p < 0.05

5.4: Tables in Mood Change

Table 5.4.1. Percentages of Total Sample and Sub-groups in Mood Change

Item		Mood Change			
		Mood Status Change			Mood Belief Change
		*Mood Status Change Rate%	Mood Status Improving Rate %	Mood Status Declining Rate %	Mood Belief Change Rate %
Total sample (810)		76.05	41.98	34.07	37.90
Gender sub-groups	Immigrant men (411)	74.21	41.36	32.85	36.74
	Immigrant women (399)	77.94	42.61	35.34	39.10
Language sub-groups	English immigrants (278)	79.50	42.09	37.41	18.71
	French immigrants (268)	68.28	28.36	39.93	48.88
	Chinese immigrants (264)	80.30	55.68	24.62	46.97
Category sub-groups	Principal Applicant immigrants (193)	74.61	41.45	33.16	41.45
	Spouse and Dependent immigrants (193)	77.20	43.52	33.68	37.31
	Family Class immigrants (354)	79.38	44.92	34.46	36.16
	Refugee immigrants (70)	60.00	28.57	24.29	38.57

Notes: Change Rate = change subjects / sampled subjects x 100%.

Table 5.4.2. Significance Level of Rates of Sub-groups in Mood Change

Item	Chi-square	p-value	Significant Difference
Rates of male and female immigrant sub-groups in mood change	8.000	0.333	No
Rates of English, French and Chinese immigrant sub-groups in mood change	24.000	0.347	No

Rates of Principal Applicant, Spouse and Dependent, Family Class, Other/Refugee immigrant sub-groups in mood change	48.000	0.243	No

Notes: Significance level: p < 0.05

Table 5.4.3. Multivariate Analysis in Mood Change

Correlation Analysis					Multiple Linear Regression Analysis			
Dependent Variable	Independent Variable	Pearson's r	p-value	Correlation between Independent Variable and Dependent Variable	Dependent Variable	Independent Variable	p-value	Impact of Independent Variable on Dependent Variable
Mood Change (Mood Status Change + Mood Belief Change)	Mother Tongue	0.137	0.000	Positive Correlation	Mood Change (Mood Status Change + Mood Belief Change)	Mother Tongue	0.000	Significant Impact
	Speaking Languages	-0.188	0.000	Negative Correlation		Speaking Languages	0.000	Significant Impact
						Highest Level of Education	0.024	Significant Impact
Mood Status Change	Marital Status	-0.125	0.000	Negative Correlation	Mood Status Change	Marital Status	0.001	Significant Impact
	Highest Level of Education	-0.097	0.006	Negative Correlation		Highest Level of Education	0.007	Significant Impact

Notes: Correlation: r > 0.05; Significance level: p < 0.05

5.5: Tables in Sleep Change

Table 5.5.1. Percentages of Total Sample and Sub-groups in Sleep Change

Item		Sleep Change						
		Sleep Behavior Change						Sleep Belief Change
		*Sleep Time Change Rate %	Sleep Time Increasing Rate %	Sleep Time Decreasing Rate %	Sleep Quality Change Rate %	Sleep Quality Improving Rate %	Sleep Quality Declining Rate %	Sleep Belief Change Rate %
Total sample (810)		55.43	27.78	27.65	71.48	35.68	35.80	52.35
Gender sub-groups	Immigrant men (411)	57.66	32.60	25.79	68.86	37.23	31.63	49.88
	Immigrant women (399)	53.13	22.81	30.33	74.19	34.09	40.10	54.89
Language sub-groups	English immigrants (278)	60.43	32.37	28.06	71.58	35.97	35.61	35.97
	French immigrants (268)	61.19	20.52	40.67	70.90	24.25	46.64	55.60
	Chinese immigrants (264)	43.56	30.30	14.02	71.97	46.97	25.00	66.29
Category sub-groups	Principal Applicant immigrants (193)	58.03	34.72	23.32	69.43	37.82	31.61	55.44
	Spouse and Dependent immigrants (193)	45.60	26.42	19.17	65.80	33.16	32.64	52.33
	Family Class immigrants (354)	58.19	26.55	31.64	74.86	37.29	37.57	52.26
	Other (Refugee) immigrants (70)	61.43	18.57	42.86	75.71	28.57	47.14	44.29

Notes: Change Rate = change subjects / sampled subjects x 100%

Table 5.5.2. Significance Level of Rates of Sub-groups in Sleep Change

Item	Chi-square	p-value	Significant Difference
Sleep change rates of male and female immigrant sub-groups	14.000	0.374	No
Sleep change rates of English, French and Chinese immigrant sub-groups	42.000	0.302	No

Sleep change rates of Principal Applicant, Spouse and Dependent, Family Class, Other/Refugee immigrant sub-groups	84.000	0.388	No

Notes: Significance level: p < 0.05

Table 5.5.3. Multivariate Analysis in Sleep Change

Correlation Analysis					Multiple Linear Regression Analysis			
Dependent Variable	Independent Variable	Pearson's r	p-value	Correlation between Independent Variable and Dependent Variable	Dependent Variable	Independent Variable	p-value	Impact of Independent Variable on Dependent Variable
Sleep Change (Sleep Behavior Change + Sleep Belief Change)	Mother Tongue	-0.139	0.000	Negative Correlation	Sleep Change (Sleep Behavior Change + Sleep Belief Change)	Mother Tongue	0.000	Significant Impact
	Age	0.193	0.006	Positive Correlation		Age	0.001	Significant Impact
	Primary Occupy	0.120	0.001	Positive Correlation		Primary Occupy	0.026	Significant Impact
Sleep Behavior Change	Mother Tongue	-0.175	0.000	Negative Correlation	Sleep Behavior Change	Gender	0.038	Significant Impact
	Age	0.246	0.000	Positive Correlation		Age	0.000	Significant Impact
	Primary Occupy	0.171	0.000	Positive Correlation		Primary Occupy	0.006	Significant Impact

Notes: Correlatio: r > 0.05; Significance level: p < 0.05

5.6: Tables and Figures in Physical Activity Change

Table 5.6.1.1. Percentages of Total Sample and Sub-groups in Physical Activity Change

Item		Physical Activity Change									Physical Activity Belief Change
		Physical Activity Behavior Change									
		*Physical Exercise Time Change Rate %	Physical Exercise Time Increasing Rate %	Physical Exercise Time Decreasing Rate %	Physical Activity Level Change Rate %	Physical Activity Level Increasing Rate %	Physical Activity Level Decreasing Rate %	Exercise Item Number Change Rate %	Physical Exercise Item Number Increasing Rate %	Physical Exercise Item Number Decreasing Rate %	Physical Exercise Belief Change Rate %
Total sample (810)		74.20	43.21	30.99	75.31	37.16	38.15	78.40	56.17	22.22	56.05
Gender sub-groups	Immigrant men (411)	72.99	40.88	32.12	72.75	36.98	35.77	81.51	60.15	23.11	59.61
	Immigrant women (399)	75.44	45.61	29.82	77.94	37.34	40.60	74.94	53.88	21.05	52.38
Language sub-groups	English immigrants (278)	74.10	34.89	39.21	74.46	27.70	46.76	83.45	61.51	21.94	56.84
	French immigrants (268)	69.03	27.61	41.42	72.38	24.25	48.13	72.02	39.55	32.46	51.12
	Chinese immigrants (264)	79.55	67.80	11.74	79.17	60.25	18.94	79.55	67.42	12.12	60.23
Category sub-groups	Principal Applicant immigrants (193)	75.13	50.26	24.87	77.20	46.63	30.57	82.90	62.18	20.73	64.25
	Spouse and Dependent immigrants (193)	67.88	40.41	27.46	70.98	36.27	34.72	76.17	56.99	19.17	53.89
	Family Class immigrants (354)	79.66	44.63	35.59	77.40	35.31	42.09	78.81	56.21	22.60	56.78
	Other (Refugee) immigrants (70)	58.57	24.29	34.29	71.43	22.86	48.57	70.00	37.14	32.86	35.71

Notes: Change Rate = change subjects / sampled subjects x 100%

Table 5.6.1.2. Percentages of Total Sample and Language Sub-groups in Physical

Exercise Items after Immigration

Physical Exercise Item		Walking Rate %	Jogging / Running Rate %	Biking Rate %	Hiking Rate %	Skiing Rate %	Skating Rate %	Soccer Rate %	Basket Ball Rate %	Hockey Rate %	Tennis Rate %	Table Tennis Rate %	Badminton Rate %	Swimming Rate %	Yoga Rate %	TaiJi/ QiGong Rate %	Fitness Exercises Rate %	Other Rate %
Total sample (810)		67.04	42.72	16.42	17.04	15.19	13.95	20.86	23.21	9.26	15.31	20.25	19.26	22.47	12.47	9.26	50.00	2.10
Language sub-groups	English immigrants (278)	61.15	34.17	19.07	17.63	20.14	20.14	27.34	32.01	17.99	24.10	24.82	26.62	33.09	12.23	2.16	54.68	0.72
	French immigrants (268)	63.81	37.31	21.27	5.60	11.19	11.94	32.46	22.39	5.22	11.57	6.72	6.34	14.18	10.82	1.87	39.93	3.36
	Chinese Immigrants (264)	76.52	57.20	8.71	28.03	14.02	9.47	2.27	14.77	4.17	9.85	29.17	24.62	19.70	14.39	24.24	55.30	2.27

Notes: *Walking Rate = walking subjects / sampled subjects x 100%

Table 5.6.2. Significance Level of Rates of Sub-groups in Physical Activity

Item	Chi-square	p-value	Significant Difference
Physical activity change rates of male and female immigrant sub-groups	20.000	0.395	No
Physical activity change rates of English, French and Chinese immigrant sub-groups	60.000	0.333	No
Physical activity change rates of Principal Applicant, Spouse and Dependent, Family Class, Other/Refugee immigrant sub-groups	120.000	0.406	No
Physical exercise item rates of English, French and Chinese immigrant sub-groups	102.000	0.318	No
Physical exercise item rates of French and Chinese immigrant sub-groups	34.000	0.371	No
Physical exerciseiItem rates of English and French immigrant sub-groups	34.000	0.371	No

Physical exercise item rates of English and Chinese immigrant sub-groups	34.000	0.371	No

Table 5.6.3. Multivariate Analysis in Physical Activity Change

Correlation Analysis					Multiple Linear Regression Analysis			
Dependent Variable	Independent Variable	Pearson's r	p-value	Correlation between Independent Variable and Dependent Variable	Dependent Variable	Independent Variable	p-value	Impact of Independent Variable on Dependent Variable
Physical Activity Change (Physical Activity Behavior Change + Physical Activity Belief Change)	Gender	-0.139	0.000	Negative Correlation	Physical Activity Change (Physical Activity Behavior Change + Physical Activity Belief Change)	Age	0.014	Significant Impact
	Category of Immigration	-0.161	0.000	Negative Correlation		Gender	0.014	Significant Impact
	Employment Status	-0.177	0.000	Negative Correlation		Category of Immigration	0.017	Significant Impact
	Primary Occupation	-0.151	0.000	Negative Correlation		Employment Status	0.001	Significant Impact
Physical Activity	Age	-0.210	0.000	Negative Correlation	Physical Activity	Mother Tongue	0.001	Significant Impact
	Gender	-0.202	0.000	Negative Correlation		Age	0.000	Significant Impact
	Category of Immigration	-0.180	0.000	Negative Correlation		Gender	0.000	Significant Impact

| Behavior Change | Employment Status | -0.144 | 0.000 | Negative Correlation | Behavior Change | Category of Immigration | 0.009 | Significant Impact |
| | Primary Occupation | -0.231 | 0.000 | Negative Correlation | | Employment Status | 0.025 | Significant Impact |

Notes: Correlation: r > 0.05; Significance level: p < 0.05.

5.6.4. Figures and Table of Factor Analysis

Figure 5.6.4.1. Factor Analysis Scree Plot for Mother Tongue to Physical Activity Change

Figure 5.6.4.2. Factor Analysis Scree Plot for Category of Immigration to Physical Activity Change
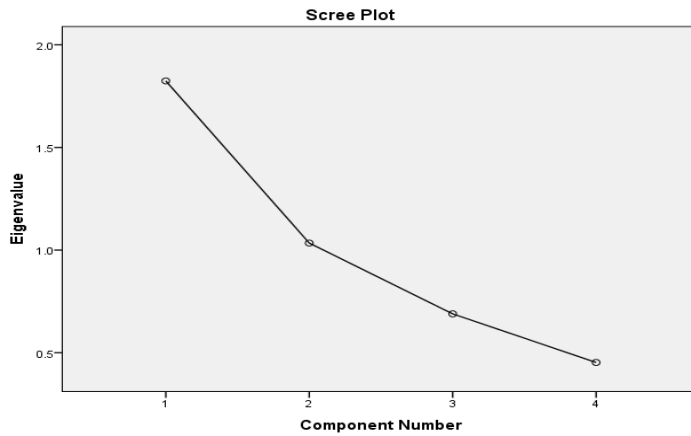
Table 5.6.4.3. Factor Analysis of Variables in Physical Activity Change

Item		*Factor		
Dependent Variable	Independent Variable	1	2	Factor Name
Mother Tongue	Physical Exercise Time Change	0.841	0.109	Physical Activity Behavior Change Factor
	Physical Activity Level Change	0.819	-0.118	
	Physical Exercise Items Change	0.820	-0.115	
	Physical Exercise Belief Change	-0.050	0.991	Physical Activity Belief Change Factor
Category of Immigration	Physical Exercise Time Change	0.740	0.181	Physical Activity Behavior Change Factor
	Physical Activity Level Change	0.762	-0.014	
	Physical Exercise Items Change	0.831	-0.206	
	Physical Exercise Belief Change	-0.007	0.981	Physical Activity Belief Change Factor

*Notes: The factor loading matrix was a varimax rotated matrix.

5.7: Tables and Figures in Dietary Change

Table 5.7.1.1. Percentages of Total Sample and Sub-groups in Consumption Change of

Nutritional Foods and Junk and Processed Foods

Item		Dietary Change	
		*Rate in nutritional food consumption change %	Rate in junk and processed food consumption change %
Total sample (810)		92.75	91.85
Gender sub-groups	Immigrant men (411)	91.93	93.19
	Immigrant women (399)	92.98	90.48
Language sub-groups	English immigrants (278)	94.60	95.68
	French immigrants (268)	86.57	84.33
	Chinese immigrants (264)	95.83	95.46
Category sub-groups	Principal Applicant immigrants (193)	91.71	91.71
	Spouse and Dependent immigrants (193)	94.82	90.57
	Family Class immigrants (354)	91.24	90.11
	Other (Refugee) immigrants (70)	84.29	88.57

Notes: *Change rate in nutritional food consumption = change subjects / sampled subjects x 100%.

Table 5.7.1.2. Increasing and Decreasing Rates of Total Sample and Sub-groups in

Consumption of Different Nutritional Foods

Item	Lean Meat	Beef	Chicken	Fish	Shrimp	Egg	Honey

		Low-Fat Milk		Yogurt		Tofu		Rice		Pastes		Oatmeal		Maize	
		*Increasing rate %	Decreasing rate %	Increasing rate %	Decreasing rate %	Increasing rate %	Decreasing rate %	Increasing rate %	Decreasing rate %	Increasing rate %	Decreasing rate %	Increasing rate %	Decreasing rate %	Increasing rate %	Decreasing rate %
Total sample (810)		33.09	19.63	51.11	20.25	38.15	29.75	49.26	13.70	43.33	10.62	29.01	26.67	9.51	16.17
Gender sub-groups	Immigrant men (411)	34.31	18.00	57.66	16.55	41.61	27.01	47.69	16.30	40.39	11.44	27.49	24.57	8.52	15.09
	Immigrant women (399)	31.83	21.30	44.36	24.06	34.59	32.58	50.88	11.03	45.01	9.77	30.58	28.82	10.53	17.29
Language sub-groups	English immigrants (278)	28.06	22.30	52.52	24.46	35.25	12.95	58.99	10.43	54.32	9.35	27.34	21.58	9.35	17.99
	French immigrants (268)	28.36	12.69	47.76	15.67	51.49	45.90	21.64	25.37	15.30	13.81	25.00	22.01	10.07	8.21
	Chinese immigrants (264)	43.18	23.86	56.06	20.45	27.65	42.05	67.05	5.30	60.23	8.71	34.85	36.74	9.09	22.35
Category sub-groups	Principal Applicant immigrants (193)	38.34	14.51	62.69	15.03	40.93	27.98	48.19	14.51	41.45	11.92	26.94	21.76	8.81	13.99
	Spouse and Dependent immigrants (193)	32.64	16.06	50.26	18.13	36.27	30.57	49.74	14.51	44.56	12.44	32.12	29.02	9.84	24.35
	Family Class immigrants (354)	31.07	25.14	48.31	24.29	35.59	33.62	54.52	11.58	49.44	9.60	29.10	30.51	11.02	12.99
	Other (Refugee) immigrants (70)	30.00	15.71	35.71	20.00	48.57	12.86	24.29	20.00	14.29	7.14	25.71	14.29	2.86	15.71
Item		Low-Fat Milk		Yogurt		Tofu		Rice		Pastes		Oatmeal		Maize	
		Increasing rate %	Decreasing rate %	Increasing rate %	Decreasing rate %	Increasing rate %	Decreasing rate %	Increasing rate %	Decreasing rate %	Increasing rate %	Decreasing rate %	Increasing rate %	Decreasing rate %	Increasing rate %	Decreasing rate %

		Col1	Col2	Col3	Col4	Col5	Col6	Col7	Col8	Col9	Col10	Col11	Col12	Col13	Col14
Total sample (810)		40.74	7.53	55.06	6.91	27.28	17.78	39.01	28.64	19.51	23.09	22.47	5.80	14.44	18.40
Gender sub-groups	Immigrant men (411)	39.17	7.54	50.12	8.76	29.20	14.60	47.45	26.03	18.49	22.38	19.71	6.08	13.87	18.73
	Immigrant women (399)	42.36	7.52	60.15	5.01	25.31	21.05	30.33	31.33	20.55	23.81	25.31	5.51	15.04	18.05
Language sub-groups	English Immigrants (278)	50.00	8.99	64.03	6.83	37.41	5.76	47.48	9.71	12.95	15.83	16.19	4.68	15.11	13.31
	French immigrants (268)	18.66	8.96	38.43	8.21	16.79	4.10	53.73	12.31	22.39	17.91	10.07	4.48	10.45	17.91
	Chinese immigrants (264)	53.41	4.55	64.39	5.68	27.27	44.32	15.15	65.15	23.48	35.98	41.67	8.33	17.80	24.24
Category sub-groups	Principal Applicant immigrants (193)	42.49	7.25	49.22	7.77	30.57	20.73	40.93	33.68	16.58	24.35	20.21	8.29	12.44	21.76
	Spouse and Dependent immigrants (193)	44.56	7.77	63.21	4.66	24.87	19.17	37.82	33.68	23.83	21.76	29.02	4.66	17.10	20.73
	Family Class immigrants (354)	43.22	6.78	57.91	7.34	28.81	18.64	35.31	25.71	17.23	23.16	23.16	5.37	14.69	16.38
	Other (Refugee) immigrants (70)	12.86	11.43	34.29	8.57	17.14	1.43	55.71	15.71	27.14	22.86	7.14	4.29	11.43	12.86

Item		Potato		Sweet Potato		Fresh Vegetable		Fresh Fruit		Natural Fruit Juices		Tea	
		Increasing rate %	Decreasing rate %	Increasing rate %	Decreasing rate %	Increasing rate %	Decreasing rate %	Increasing rate %	Decreasing rate %	Increasing rate %	Decreasing rate %	Increasing rate %	Decreasing rate %
Total sample (810)		20.37	19.38	28.02	11.98	49.63	31.73	49.88	34.32	20.62	18.52	15.80	18.52
	Immigrant men (411)	19.71	17.27	22.38	11.92	46.96	15.09	48.42	34.55	23.60	17.03	17.27	20.92

		21.05	21.55	33.83	12.03	52.38	17.29	51.38	34.09	17.54	20.05	14.29	16.04
Gender sub-groups	Immigrant women (399)	21.05	21.55	33.83	12.03	52.38	17.29	51.38	34.09	17.54	20.05	14.29	16.04
Language sub-groups	English immigrants (278)	21.94	14.75	33.45	8.99	41.01	47.84	43.88	46.40	21.22	15.47	16.55	20.86
	French immigrants (268)	19.78	16.04	19.78	13.43	27.61	35.45	27.61	42.91	19.78	12.69	20.9	19.40
	Chinese immigrants (264)	19.32	27.65	30.68	13.64	81.06	10.98	78.79	12.88	20.83	27.65	9.85	15.15
Category sub-groups	Principal Applicant immigrants (193)	19.69	15.54	25.39	11.92	52.85	29.02	52.33	30.57	21.24	22.28	16.58	18.13
	Spouse and Dependent immigrants (193)	21.76	22.28	34.72	10.88	49.22	33.68	50.78	35.23	26.94	16.06	17.62	19.17
	Family Class immigrants (354)	20.62	19.49	28.25	10.73	53.67	30.51	52.82	34.46	17.23	20.34	14.69	17.80
	Other (Refugee) immigrants (70)	17.14	21.43	15.71	21.43	20.00	40.00	25.71	41.43	18.57	5.71	14.29	21.43

Notes: *Lean meat increasing rate = lean meat increasing subjects / sampled subjects x 100%.

Table 5.7.1.3. Increasing and Decreasing Rates of Total Sample and Sub-groups in

Consumption of Different Junk and Processed Foods

Item	Fatty		Fried Foods		Pickled Foods		Salted Meat		Sausage and Dried Meat		Chips, Biscuits and Instant Noodles	
	*Increasing rate %	Decreasing rate %	Increasing rate %	Decreasing rate %	Increasing rate %	Decreasing rate %	Increasing rate %	Decreasing rate %	Increasing rate %	Decreasing rate %	Increasing rate %	Decreasing rate %

Total sample (810)		32.84	29.51	48.64	23.70	16.54	30.12	8.64	33.33	28.64	20.25	55.19	13.21
Gender sub-groups	Immigrant men (411)	43.36	23.84	48.42	24.33	17.76	30.17	9.25	32.85	28.95	20.19	54.01	13.14
	Immigrant women (399)	23.31	35.34	48.87	23.06	15.29	30.08	8.02	33.83	28.32	20.30	56.39	13.28
Language sub-groups	English immigrants (278)	35.61	18.71	47.48	25.54	25.90	14.81	11.15	28.42	29.50	16.55	56.83	17.27
	French immigrants (268)	46.64	16.04	38.81	19.03	12.31	20.90	10.07	29.10	26.12	17.91	38.81	8.58
	Chinese immigrants (264)	15.91	54.55	59.85	26.52	10.98	50.00	4.55	42.80	30.30	26.52	70.08	13.64
Category sub-groups	Principal Applicant immigrants (193)	33.68	29.53	52.85	21.24	19.17	27.98	7.77	33.16	20.21	25.39	57.51	13.47
	Spouse and Dependent immigrants (193)	33.68	30.05	52.33	22.80	16.58	34.72	12.95	35.23	30.05	20.21	56.48	12.44
	Family Class immigrants (354)	27.40	31.36	46.33	26.84	15.82	30.51	6.50	33.05	32.49	18.64	57.91	14.41
	Other (Refugee) immigrants (70)	55.71	18.57	38.57	17.14	12.86	21.43	10.00	30.00	28.57	14.29	31.43	8.57

Item	Canned Foods		High Sugar Cakes		Candy and Chocolate Bars		Soft Drinks and Colas		High-Sugar Fruit Juices		Ice Cream and Popsicle		Coffee with Sugar	
	Increasing rate %	Decreasing rate %	Increasing rate %	Decreasing rate %	Increasing rate %	Decreasing rate %	Increasing rate %	Decreasing rate %	Increasing rate %	Decreasing rate %	Increasing rate %	Decreasing rate %	Increasing rate %	Decreasing rate %
Total sample (810)	15.56	16.30	48.02	15.43	39.14	14.57	13.21	22.72	12.59	27.90	14.81	20.12	49.63	8.40

Gender sub-groups	Immigrant men (411)	18.49	15.82	44.53	16.30	33.09	14.36	13.87	20.44	12.90	28.71	13.14	21.17	57.91	9.00
	Immigrant women (399)	2.53	16.79	51.63	14.54	45.36	14.79	12.53	25.06	12.28	27.07	16.54	19.05	41.10	7.77
Language sub-groups	English immigrants (278)	11.15	17.99	50.72	14.75	42.45	15.11	6.83	66.19	5.40	26.26	17.99	18.71	57.55	10.43
	French immigrants (268)	18.66	8.58	38.81	13.43	27.24	11.57	17.54	19.78	23.51	21.64	15.30	17.91	30.97	6.72
	Chinese immigrants (264)	17.05	22.35	54.55	18.18	47.73	7.05	5.53	21.97	9.09	27.65	10.98	23.86	60.23	7.95
Categorys Sub-groups	Principal Applicant immigrants (193)	19.69	17.62	46.11	14.51	28.50	13.47	13.47	24.35	11.40	27.98	10.88	22.80	64.77	7.77
	Spouse and Dependent immigrants (193)	14.51	17.62	51.30	16.58	47.15	17.62	15.54	24.87	15.54	25.39	17.62	20.21	47.15	5.70
	Family Class immigrants (354)	13.28	16.67	49.15	16.10	41.53	13.84	10.73	20.06	9.04	30.51	13.84	18.93	47.18	9.32
	Other (Refugee) immigrants (70)	18.57	7.14	38.57	11.43	34.29	12.86	18.57	25.71	25.71	21.43	22.86	18.57	27.14	12.86

Notes: *Fatty increasing rate = fatty increasing subjects / sampled subjects x 100%.

Table 5.7.1.4. Percentages of Gender and Language Sub-groups in Belief Changes of

Nutritional Food and Junk and Processed Food Consumption

Item	Nutritional Food Consumption Belief			Junk and Processed Food Consumption Belief		
	*Change rate %	Increasing rate % of "Nutritional Food	Decreasing rate % of "Nutritional Food Can Promote Health"	Change rate %	Increasing rate % of "Junk and Processed	Decreasing rate % of "Junk and Processed Food

			Can Promote Health"			Food Have Adverse Effects on Health"	Have Adverse Effects on Health"
Gender sub-groups	Immigrant men (411)	51.34	33.82	17.52	69.10	44.28	24.82
	Immigrant women (399)	51.63	37.09	14.54	67.92	52.88	15.04
Language sub-groups	English immigrants (278)	50.92	30.94	19.78	66.19	45.68	20.50
	French immigrants (268)	52.24	31.72	20.52	59.70	31.72	27.99
	Chinese immigrants (264)	51.52	43.94	7.58	79.55	68.18	11.36

Notes: *Change rate = change subjects / sampled subjects x 100%.

Table 5.7.2. Significant Level of Rates of Sub-groups in Dietary Change

Item		Chi-square	*p-value	Significant Difference
Gender (man and woman) immigrant sub-groups	Rates in consumption change of nutritional foods and junk and processed foods	4.000	0.261	No
	Increasing and decreasing rates in consumption of different nutritional foods	4.000	0.261	No
	Increasing and decreasing rates in consumption of different junk and processed foods	49.333	0.460	N0
	Rates in belief change of nutritional food and junk and processed food consumption	12.000	0.364	No
Language (English, French, and Chinese) immigrant sub-groups	Rates in consumption change of nutritional foods and junk and processed foods	12.000	0.364	No
	Increasing and decreasing rates in consumption of different nutritional foods	240.000	0.091	No
	Increasing and decreasing rates in consumption of different junk and processed foods	156.000	0.075	No
	Rates in belief change of nutritional food and junk and processed food consumption	36.000	0.287	No
Category (Principal Applicant, Spouse and Dependent, Family Class, and Other/Refugee) immigrant sub-groups	Rates in consumption change of nutritional foods and junk and processed foods	24.000	0.155	No
	Increasing and decreasing rates in consumption of different nutritional foods	409.333	0.004	Yes
	Increasing and decreasing rates in consumption of different junk and processed foods	208.026	0.009	Yes
	Rates in belief change of nutritional food and junk and processed food consumption	26.000	0.252	No

Notes: Significant level: $p < 0.05$.

Table 5.7.3. Multivariate Analysis in Dietary Change

Correlation analysis					Regression analysis			
Dependent variable	Independent variable	Pearson's r	p-value	Correlation between independent variable and dependent variable	Dependent variable	Independent variable	p-value	Impact of independent variable on dependent variable
Dietary Change (Dietary Behavior Change + Dietary Belief Change)	Speaking Languages	0.158	0.000	Positive correlation	Dietary Change (Dietary Behavior Change + Dietary Belief Change)	Speaking Languages	0.028	Significant impact
	Age	0.167	0.000	Positive correlation		Age	0.001	Significant impact
	Religion	0.215	0.000	Positive correlation		Religion	0.000	Significant impact
Dietary Behavior Change	Religion	-0.125	0.000	Negative correlation	Dietary Behavior Change	Religion	0.004	Significant impact

Notes: Correlation: r > 0.05; Significance level: p < 0.05

5.7.4. Figures and Table of Factor Analysis

Figure 5.7.4.1. Factor Analysis Scree Plot for Mother Tongue to Dietary Change
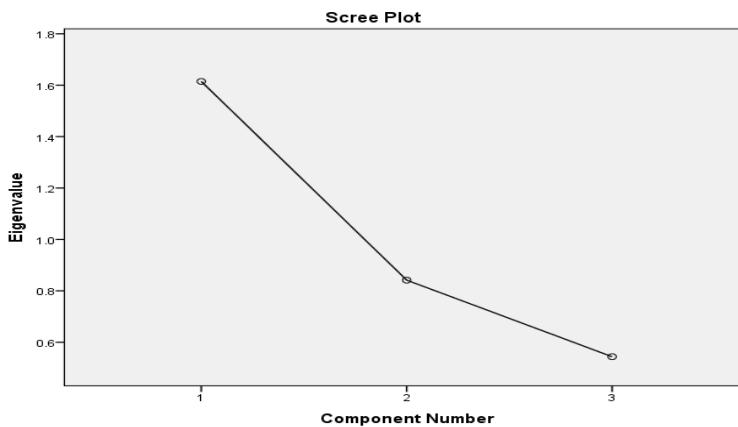
Figure 5.7.4.2. Factor Analysis Scree Plot for Category of Immigration to Dietary

Change

Table 5.7.4.3. Factor Analysis of Variables in Dietary Change

Item		*Factor	
Independent variable	Dependent variable	1	Factor name
Mother Tongue	Nutritional food consumption change	0.485	Dietary behavior change factor
	Junk and processed food consumption change	0.504	
	Dietary belief change	-0.360	Dietary belief change factor
Category of Immigration	Nutritional food consumption change	0.686	Dietary behavior change factor
	Junk and processed food consumption change	0.755	
	Dietary belief change	-0.565	Dietary belief change factor

*Notes: The factor loading matrix was a varimax rotated matrix.

5.8: Tables in Health Status Change

Table 5.8.1. Percentages of Total Sample and Sub-groups in Health Status Change

Item		Health Status Change		
		*Health Status Change Rate %	Health Status Improving Rate %	Health Status Declining Rate %
Total sample (810)		75.31	40.74	34.57
Gender sub-groups	Immigrant men (411)	75.18	42.82	32.36
	Immigrant women (399)	75.44	38.60	36.84
Language sub-groups	English immigrants (278)	79.14	40.65	38.49
	French immigrants (268)	70.52	27.24	43.28
	Chinese immigrants (264)	76.14	54.55	21.59
Category sub-groups	Principal Applicant immigrants (193)	80.83	52.85	27.98
	Spouse and Dependent immigrants (193)	68.39	37.31	31.09
	Family Class immigrants (354)	80.23	39.55	40.68
	Other (Refugee) immigrants (70)	54.29	22.86	31.43

Notes: * Health Status Change Rate = health status change subjects / sampled subjects x 100%

Table 5.8.2. Significance Level of Rates of Sub-groups in Health Status Change

Item	Chi-square	p-value	Significant Difference
Health Status Change Rates of male and female immigrant sub-groups	6.000	0.306	No
Health Status Change Rates of English, French and Chinese immigrant sub-groups	18.000	0.324	No
Health Status Change Rates of Principal Applicant, Spouse and Dependent, Family Class, Other/Refugee immigrant sub-groups	36.000	0.330	No

Notes: Significance level: $p < 0.05$

Table 5.8.3. Multivariate Analysis in Health Status Change

Correlation Analysis					Multiple Linear Regression Analysis			
Dependent Variable	Independent Variable	Pearson's r	p-value	Correlation between Independent Variable and Dependent Variable	Dependent Variable	Independent Variable	p-value	Impact of Independent Variable on Dependent Variable
Health Status Change	Age	0.414	0.000	Positive Correlation	Health Status Change	Mother Tongue	0.002	Significant Impact
	Primary Occupation	0.310	0.000	Positive Correlation		Age	0.000	Significant Impact
	Income	0.173	0.000	Positive Correlation		Primary Occupation	0.005	Significant Impact
						Income	0.002	Significant Impact

Notes: Correlation: r > 0.05; Significance level: p < 0.05

Appendix 6:

Pilot-Testing Documents of the Multicultural Lifestyle Change Questionnaire

Multicultural Lifestyle Change Questionnaire
(Pilot-testing)

🍁 Multicultural Canada 🍁

1. Introduction

Thank you for voluntarily participating in the pilot-testing of multicultural lifestyle change questionnaire of English, French or Chinese speaking immigrants in Ottawa and Gatineau, Canada. The pilot-testing takes about 20-30 minutes. Please do not write your name, contact details on any of the pages; this questionnaire is strictly anonymous: no respondent can be identified. We would very much appreciate if you answer these questions as honestly as you can, and also respect other person's privacy in that matter.

You will receive $20 after responding to the pilot-testing questionnaire twice.

Please read the response instructions at the beginning of next page. There are no right or wrong answers.

You are encouraged to respond to all the questions. You can always ask the principal researcher for help. After completing the questionnaire, you may ask for the summary of final report from the researcher. Thank you very much.

2. Contact Information

Ning Tang (principal researcher), E-mail: tang0139@flinders.edu.au, telephone: 819-420-1691, mobile phone: 819-708-3099, address: 21-76 rue Richard, Gatineau, Québec J8Y 4Z2, Canada, DrPH (Doctor of Public Health) Student at Department of Public Health, School of Medicine, Flinders University, Australia. Principal supervisor of Ning Tang: A/Professor Colin MacDougall (E-mail: colin.macdougall@flinders.edu.au) at School of Medicine, Flinders University, Australia.

3. Submission Information

Please return this completed questionnaire to the principal researcher, Ning Tang.

Response instruction:
For each question, mark your answer by a dark pencil. **Tick only one box in the response boxes for each question unless the specific instructions in some of the questions tell you to tick all boxes that apply**.

Proper Mark: X

Section 1: Smoking Change

1.1. Smoking behavior change:
1.1.1. Which of the following best describes you?

☐ **A.** You have never smoked cigarettes

☐ **B.** You smoked before arrival in Canada, but quit after arrival

☐ **C.** You did not smoke before arrival in Canada, but began to smoke after arrival

☐ **D.** If you smoked both before arrival and since arrival in Canada → go to question
1.1.1.1. and question **1.1.1.2.** below ⬇

    1.1.1.1. In the **last year before arrival** in Canada, on average, how many cigarettes did you smoke **each day**?

☐ **a.** 1 – 10 (less than one pack)

☐ **b.** 11 – 20 (one pack)

☐ **c.** 21 – 40 (two packs)

☐ **d.** 41 or more (more than two packs)

☐ **e.** Do not know

    1.1.1.2. In the **past year** in Canada, on average, how many cigarettes did you smoke **each day**?

☐ **a.** 1 – 10 (less than one pack)

☐ **b.** 11 – 20 (one pack)

☐ **c.** 21 – 40 (two packs)

☐ **d.** 41 or more (more than two packs)

☐ **e.** Do not know

1.2. Smoking belief change:

1.2.1. Before arrival in Canada, which of these statements best describes your belief with regards to smoking cigarettes?

☐ **A.** Smoking cigarettes is **extremely bad** for health

☐ **B.** Smoking cigarettes is **very bad** for health

☐ **C.** Smoking cigarettes is **bad** for health

☐ **D.** Smoking cigarettes is **somewhat bad** for health

☐ **E.** Smoking cigarettes is **less than somewhat bad** for health

☐ **F.** Smoking cigarettes is **not bad** for health

☐ **G.** Do not know

1.2.2. Since arrival in Canada, which of these statements best describes your belief with regards to smoking cigarettes?

☐ **A.** Smoking cigarettes is **extremely bad** for health

☐ **B.** Smoking cigarettes is **very bad** for health

☐ **C.** Smoking cigarettes is **bad** for health

☐ **D.** Smoking cigarettes is **somewhat bad** for health

☐ **E.** Smoking cigarettes is **less than somewhat bad** for health

☐ **F.** Smoking cigarettes is **not bad** for health

☐ **G.** Do not know

Section 2: Alcohol Consumption Change

2.1. Alcohol consumption behavior change:
2.1.1. Which of the following best describes you?

☐ **A.** You have never drunk alcohol (including any alcoholic beverage)

☐ **B.** You drank alcohol before arrival in Canada, but quit after arrival

☐ **C.** You did not drink alcohol before arrival in Canada, but began to drink alcohol after arrival

☐ **D.** If you drank alcohol both before arrival and since arrival in Canada ➤ go to question **2.1.1.1.** and question **2.1.1.2.** below ⬇

    2.1.1.1. In the **last year before arrival** in Canada, on average, how much alcohol (beer, wine) did you drink **each day**?

435

☐ **a.** 1/2 bottle of beer or less, or a glass of wine or less

☐ **b.** 1 – 1.5 bottles of beer, or 2 – 3 glasses of wine

☐ **c.** 2 – 3 bottles of beer, or 4 – 6 glasses of wine

☐ **d.** 4 bottles of beer or more, or 7 – 8 glasses of wine or more

☐ **e.** Do not know

2.1.1.2. In the **past year** in Canada, on average, how much alcohol (beer, wine) did you drink **each day**?

☐ **a.** 1/2 bottle of beer or less, or a glass of wine or less

☐ **b.** 1 – 1.5 bottles of beer, or 2 – 3 glasses of wine

☐ **c.** 2 – 3 bottles of beer, or 4 – 6 glasses of wine

☐ **d.** 4 bottles of beer or more, or 7 – 8 glasses of wine or more

☐ **e.** Do not know

2.2. Alcohol consumption belief change:
2.2.1. Before arrival in Canada, which of these statements best describes your belief with regards to drinking alcohol?

☐ **A.** Drinking alcohol is **<u>extremely bad</u>** for health

☐ **B.** Drinking alcohol is **<u>very bad</u>** for health

☐ **C.** Drinking alcohol is **<u>bad</u>** for health

☐ **D.** Drinking alcohol is **<u>somewhat bad</u>** for health

☐ **E.** Drinking alcohol is **<u>less than somewhat bad</u>** for health

☐ **F.** Drinking alcohol is **<u>not bad</u>** for health

☐ **G.** Do not know

2.2.2. Since arrival in Canada, which of these statements best describes your belief with regards to drinking alcohol?

☐ **A.** Drinking alcohol is **<u>extremely bad</u>** for health

☐ **B.** Drinking alcohol is **<u>very bad</u>** for health

☐ **C.** Drinking alcohol is **<u>bad</u>** for health

☐ **D.** Drinking alcohol is **<u>somewhat bad</u>** for health

☐**E.** Drinking alcohol is **<u>less than somewhat bad</u>** for health

☐**F.** Drinking alcohol is **<u>not bad</u>** for health

☐**G.** Do not know

Section 3: Mood Change

3.1. Mood status change:
3.1.1. Before arrival in Canada, how would you describe your overall mood status?

☐**A.** Very relaxed

☐**B.** Relaxed

☐**C.** Somewhat relaxed

☐**D.** Neutral (neither relaxed nor anxious)

☐**E.** Somewhat anxious

☐**F.** Anxious

☐**G.** Very anxious

☐**H.** Do not know

3.1.2. Since arrival in Canada, how would you describe your overall mood status?

☐**A.** Very relaxed

☐**B.** Relaxed

☐**C.** Somewhat relaxed

☐**D.** Neutral (neither relaxed nor anxious)

☐**E.** Somewhat anxious

☐**F.** Anxious

☐**G.** Very anxious

☐**H.** Do not know

3.2. Mood belief change:
3.2.1. Before arrival in Canada, which of these statements best described your belief with regards to anxiety?

☐**A.** Anxiety affects **<u>extremely negatively</u>** health

☐**B.** Anxiety affects **very negatively** health

☐**C.** Anxiety affects **negatively** health

☐**D.** Anxiety affects **somewhat negatively** health

☐**E.** Anxiety affects **less than somewhat negatively** health

☐**F.** Anxiety does **not** affect **negatively** health

☐**G.** Do not know

3.2.2. Since arrival in Canada, which of these statements best describes your belief with regards to anxiety?

☐**A.** Anxiety affects **extremely negatively** health

☐**B.** Anxiety affects **very negatively** health

☐**C.** Anxiety affects **negatively** health

☐**D.** Anxiety affects **somewhat negatively** health

☐**E.** Anxiety affects **less than somewhat negatively** health

☐**F.** Anxiety does **not** affect **negatively** health

☐**G.** Do not know

Section 4: Sleep Change

4.1. Sleep behavior change:
4.1.1. Change of sleep time:
4.1.1.1. Before arrival in Canada, on average, how many hours of sleep did you get **each day**?

☐**A.** 6 hours or less

☐**B.** 7 – 8 hours

☐**C.** 9 hours

☐**D.** 10 hours or more

☐**E.** Do not know

4.1.1.2. Since arrival in Canada, on average, how many hours of sleep do you get **each day**?

☐**A.** 6 hours or less

☐ **B.** 7 – 8 hours

☐ **C.** 9 hours

☐ **D.** 10 hours or more

☐ **E.** Do not know

4.1.2. Change of sleep quality:
4.1.2.1. Before arrival in Canada, how was your quality of sleep **each day**?

☐ **A.** Excellent

☐ **B.** Very good

☐ **C.** Good.

☐ **D.** Fair (neither good nor bad).

☐ **E.** Bad

☐ **F.** Very bad

☐ **G.** Extremely bad

☐ **H.** Do not know

4.1.2.2. Since arrival in Canada, how is your quality of sleep **each day**?

☐ **A.** Excellent

☐ **B.** Very good

☐ **C.** Good

☐ **D.** Fair (neither good nor bad)

☐ **E.** Bad

☐ **F.** Very bad

☐ **G.** Extremely bad

☐ **H.** Do not know

4.2. Sleep belief change:
4.2.1. Before arrival in Canada, which of these statements best describes your belief with regards to sleep?

☐ **A.** Daily high quality sleep of 7-8 hours **contributes extremely** to health

☐ **B.** Daily high quality sleep of 7-8 hours **contributes greatly** to health

☐ **C.** Daily high quality sleep of 7-8 hours **contributes** to health

☐ **D.** Daily high quality sleep of 7-8 hours **contributes somewhat** to health

☐ **E.** Daily high quality sleep of 7-8 hours **contributes less than somewhat** to health

☐ **F.** Daily high quality sleep of 7-8 hours does **not contribute** to health

☐ **G.** Do not know

4.2.2. Since arrival in Canada, which of these statements best describes your belief with regards to sleep?

☐ **A.** Daily high quality sleep of 7-8 hours **contributes extremely** to health

☐ **B.** Daily high quality sleep of 7-8 hours **contributes greatly** to health

☐ **C.** Daily high quality sleep of 7-8 hours **contributes** to health

☐ **D.** Daily high quality sleep of 7-8 hours **contributes somewhat** to health

☐ **E.** Daily high quality sleep of 7-8 hours **contributes less than somewhat** to health

☐ **F.** Daily high quality sleep of 7-8 hours does **not contribute** to health

☐ **G.** Do not know

Section 5: Physical Activity Change

5.1. Physical activity behavior change:
5.1.1. Change of physical exercise time:
5.1.1.1. Before arrival in Canada, on average, how much physical exercise did you do **each week**?

☐ **A.** Less than an hour

☐ **B.** 1 – 2 hour

☐ **C.** 3 – 4 hours

☐ **D.** 5 – 6 hours

☐ **E.** More than 6 hours

☐ **F.** Do not know

5.1.1.2. Since arrival in Canada, on average, how much physical exercise do you do **each week**?

☐ **A.** Less than an hour

☐ **B.** 1 – 2 hour

☐ **C.** 3 – 4 hours

☐ **D.** 5 – 6 hours

☐ **E.** More than 6 hours

☐ **F.** Do not know

5.1.2. Change of physical activity level:
5.1.2.1. Before arrival in Canada, which of these descriptions best represents your
physical activity level of **a day**?

☐ **A. Very light** (always sitting at work or home during a day, very little walking and
housework)

☐ **B. Light** (often sitting at work or home during a day, sometimes standing, a little
walking and housework)

☐ **C. Moderate** (sometimes sitting or standing at work or home during a day,
sometimes walking, with activities of about one to two hours, such as operating
machine and heavy equipment, gardening, housework, bowling, playing golf, etc.)

☐ **D. Moderate heavy** (often standing at work or home during a day, often walking,
with moderate to vigorous activities, such as hiking, yoga, Chinese TaiJiQuan,
fitness exercises, etc.)

☐ **E**. **Heavy** (always standing at work or home during a day, frequently walking, with
high level of vigorous activities both at work or during leisure hours, such as
running, soccer, swimming, skiing, etc.)

☐ **F.** Do not know

5.1.2.2. Since arrival in Canada, which of these descriptions best represents your physical
activity level of **a day**?

☐ **A. Very light** (always sitting at work or home during a day, very little walking and
housework)

☐ **B. Light** (often sitting at work or home during a day, a little walking, sometimes
standing and doing housework)

☐ **C. Moderate** (sometimes sitting or standing at work or home during a day,
sometimes walking, with activities of about one to two hours, such as operating
machine and heavy equipment, gardening, housework, bowling, playing golf, etc.)

☐ **D. Moderate heavy** (often standing at work or home during a day, often walking,
with moderate to vigorous activities, such as hiking, yoga, Chinese TaiJiQuan,
fitness exercises, etc.)

☐**E**. **Heavy** (always often standing at work or home during a day, frequently walking, with high level of vigorous activities both at work or during leisure hours, such as running, soccer, swimming, skiing, etc.)

☐**F.** Do not know

5.1.3. Change of physical exercise items:

5.1.3.1. Before arrival in Canada, which physical exercises did you take part in **each week**? *Please tick all boxes that apply or write your answer in the space provided in the response box below if applicable.*

☐**A.** Walking   ☐**G.** Soccer   ☐**M.** Swimming

☐**B.** Jogging/Running ☐**H.** Basketball   ☐**N.** Yoga

☐**C.** Biking   ☐**I.** Hockey   ☐**O.** Chinese TaiJiQuan/QiGong

☐**D.** Hiking   ☐**J.** Tennis   ☐**P.** Fitness exercises

☐**E.** Skiing   ☐**K.** Table tennis   ☐**Q.** Other (please specify):_____

☐**F.** Skating   ☐**L.** Badminton   ☐**R.** No exercise

5.1.3.2. Since arrival in Canada, which physical exercises do you take part in **each week**? *Please tick all boxes that apply or write your answer in the space provided in the response box below if applicable.*

☐**A.** Walking   ☐**G.** Soccer   ☐**M.** Swimming

☐**B.** Jogging/Running ☐**H.** Basketball   ☐**N.** Yoga

☐**C.** Biking   ☐**I.** Hockey   ☐**O.** Chinese TaiJiQuan/QiGong

☐**D.** Hiking   ☐**J.** Tennis   ☐**P.** Fitness exercises

☐**E.** Skiing   ☐**K.** Table tennis   ☐**Q.** Other (please specify):_____

☐**F.** Skating   ☐**L.** Badminton   ☐**R.** No exercise

5.2. Physical exercise belief change:

5.2.1. Before arrival in Canada, which of these statements best describes your belief with regards to weekly physical exercises?

☐**A.** The above mentioned exercises can **very strongly promote** health

☐**B.** The above mentioned exercises can **strongly promote** health

☐**C.** The above mentioned exercises can **promote** health

☐**D.** The above mentioned exercises can **somewhat promote** health

☐**E.** The above mentioned exercises can **less than somewhat promote** health

☐**F.** The above mentioned exercises can**not promote** health

☐**G.** Do not know.

5.2.2. Since arrival in Canada, which of these statements best describes your belief with regards to weekly physical exercises?

☐**A.** The above mentioned exercises can **very strongly promote** health

☐**B.** The above mentioned exercises can **strongly promote** health

☐**C.** The above mentioned exercises can **promote** health

☐**D.** The above mentioned exercises can **somewhat promote** health

☐**E.** The above mentioned exercises can **less than somewhat promote** health

☐**F.** The above mentioned exercises can**not promote** health

☐**G.** Do not know

Section 6: Dietary Change

6.1. Dietary behavior change:
6.1.1. Change of **nutritional food** consumption:
Since arrival in Canada, did your consumption of the **nutritional foods** (i.e. lean meat, fish, chicken, seafood, egg, fresh fruit and vegetable, etc) change **each week**?

☐**A.** Changed → go to question **6.1.1.1.** and question **6.1.1.2.** below ⬇

☐**B.** Not changed

☐**C.** Do not know

> **6.1.1.1.** Since arrival in Canada, which **nutritional foods** did you **increase** consuming **each week**? *Please tick all boxes that apply or write your answer in the space provided in the response box below if applicable.*

☐**a.** Lean meat	☐**h.** Low-fat milk	☐**o.** Potato
☐**b.** Fish	☐**i.** Yogurt	☐**p.** Sweet potato
☐**c.** Chicken	☐**j.** Tofu	☐**q.** Fresh vegetable
☐**d.** Seafood	☐**k.** Rice	☐**r.** Fresh fruit
☐**e.** Shrimp	☐**l.** Pastes	☐**s.** Natural fruit juices

☐ **f.** Egg   ☐ **m.** Oatmeal   ☐ **t.** Tea

☐ **g.** Honey   ☐ **n.** Maize   ☐ **u.** Other (please specify):_____

6.1.1.2. Since arrival in Canada, which **nutritional foods** did you **decrease** consuming **each week**? *Please <u>tick all boxes that apply or write your answer in the space provided</u> in the response box below if applicable.*

☐ **a.** Lean meat   ☐ **h.** Low-fat milk   ☐ **o.** Potato

☐ **b.** Fish   ☐ **i.** Yogurt   ☐ **p.** Sweet potato

☐ **c.** Chicken   ☐ **j.** Tofu   ☐ **q.** Fresh vegetable

☐ **d.** Seafood   ☐ **k.** Rice   ☐ **r.** Fresh fruit

☐ **e.** Shrimp   ☐ **l.** Pastes   ☐ **s.** Natural fruit juices

☐ **f.** Egg   ☐ **m.** Oatmeal   ☐ **t.** Tea

☐ **g.** Honey   ☐ **n.** Maize   ☐ **u.** Other (please specify):_____

6.1.2. Change of **junk and processed food** consumption:
Since arrival in Canada, did your consumption of the **junk and processed foods** (i.e. fat meat, fried foods, canned foods, high-sugar fruit juices, etc.) change **each week**?

☐ **A.** Changed ⇢ go to question **6.1.2.1.** and question **6.1.2.2.** below ⬇

☐ **B.** Not changed

☐ **C.** Do not know

6.1.2.1. Since arrival in Canada, which **junk and processed foods** did you **increase** consuming **each week**? *Please <u>tick all boxes that apply or write your answer in the space provided</u> in the response box below if applicable.*

☐ **a.** Fatty   ☐ **h.** High-sugar cakes and desserts

☐ **b.** Fried foods   ☐ **i.** Candy and chocolate bars

☐ **c.** Pickled vegetable   ☐ **j.** Soft drinks and colas

☐ **d.** Salted meat   ☐ **k.** High-sugar fruit juices

☐ **e.** Sausage and dried meat   ☐ **l.** Ice cream and popsicle

☐ **f.** Chips, biscuits, instant noodles   ☐ **m.** Coffee with sugar

☐ **g.** Canned foods   ☐ **n.** Others (specify):_____

6.1.2.2. Since arrival in Canada, which **junk and processed foods** did you **decrease** consuming **each week**? *Please tick all boxes that apply or write your answer in the space provided in the response box below if applicable.*

☐**a.** Fatty

☐**b.** Fried foods

☐**c.** Pickled vegetable

☐**d.** Salted meat

☐**e.** Sausage and dried meat

☐**f.** Chips, biscuits, instant noodles

☐**g.** Canned foods

☐**h.** High-sugar cakes and desserts

☐**i.** Candy and chocolate bars

☐**j.** Soft drinks and colas

☐**k.** High-sugar fruit juices

☐**l.** Ice cream and popsicle

☐**m.** Coffee with sugar

☐**n.** Other (please specify):_____

6.2. Dietary belief change:

6.2.1. Before arrival in Canada, which of these statements best describes your belief with regards to the **nutritional foods**?

☐**A.** The above mentioned nutritional food can **very strongly promote** health

☐**B.** The above mentioned nutritional food can **strongly promote** health

☐**C.** The above mentioned nutritional food can **promote** health

☐**D.** The above mentioned nutritional food can **somewhat promote** health

☐**E.** The above mentioned nutritional food can **less than somewhat promote** health

☐**F.** The above mentioned nutritional food can**not promote** health

☐**G.** Do not know.

6.2.2. Since arrival in Canada, which of these statements best describes your belief with regards to the **nutritional foods**?

☐**A.** The above mentioned nutritional foods can **very strongly promote** health.

☐**B.** The above mentioned nutritional foods can **strongly promote** health

☐**C.** The above mentioned nutritional foods can **promote** health

☐**D.** The above mentioned nutritional foods can **somewhat promote** health

☐**E.** The above mentioned nutritional foods can **less than somewhat promote** health

☐**F.** The above mentioned nutritional foods can**not promote** health

☐**G.** Do not know

6.2.3. Before arrival in Canada, which of these statements best described your belief with regards to the **junk and processed foods**?

☐**A.** The above mentioned junk and processed foods have **<u>very strongly adverse effects</u>** on health

☐**B.** The above mentioned junk and processed foods have **<u>strongly adverse effects</u>** on health

☐**C.** The above mentioned junk and processed foods have **<u>adverse effects</u>** on health

☐**D.** The above mentioned junk and processed food have **<u>somewhat adverse effects</u>** on health

☐**E.** The above mentioned junk and processed food have **<u>less than somewhat adverse effects</u>** on health

☐**F.** The above mentioned junk and processed food have **<u>no adverse effect</u>** on health

☐**G.** Do not know

6.2.4. Since arrival in Canada, which of these statements best describes your belief with regards to the **junk and processed foods**?

☐**A.** The above mentioned junk and processed foods have **<u>very strongly adverse effects</u>** on health

☐**B.** The above mentioned junk and processed foods have **<u>strongly adverse effects</u>** on health

☐**C.** The above mentioned junk and processed foods have **<u>adverse effects</u>** on health

☐**D.** The above mentioned junk and processed foods have **<u>somewhat adverse effects</u>** on health

☐**E.** The above mentioned junk and processed foods have **<u>less than somewhat adverse effects</u>** on health

☐**F.** The above mentioned junk and processed foods have **<u>no adverse effect</u>** on health

☐**G.** Do not know

Section 7: Health Status Change

7.1. Before arrival in Canada, how would you estimate your overall health status?

☐ **A.** Excellent

☐ **B.** Very good

☐ **C.** Good

☐ **D.** Fair (neither good nor poor)

☐ **E.** Poor

☐ **F.** Very poor

☐ **G.** Extremely poor

☐ **H.** Do not know

7.2. Since arrival in Canada, how would you estimate your overall health status?

☐ **A.** Excellent

☐ **B.** Very good

☐ **C.** Good

☐ **D.** Fair (neither good nor poor)

☐ **E.** Poor

☐ **F.** Very poor

☐ **G.** Extremely poor

☐ **H.** Do not know

Section 8: Demographic Questions

8.1. Which is your mother tongue?

☐ **A.** English

☐ **B.** French

☐ **C.** Chinese

8.2. What language (s) can you speak? *Please __tick all boxes that apply or write your answer in the space provided in the response boxes below if applicable__.*

☐ **A.** English   ☐ **C.** Chinese

☐ **B.** French   ☐ **D.** Other (please specify): _____

8.3. What is your country of origin? _____

8.4. Which age group do you fit into?

☐ **A.** 18 – 24 years

☐ **B.** 25 – 34 years

☐ **C.** 35 – 44 years

☐ **D.** 45 – 54 years

☐ **E.** 55 – 64 years

☐ **F.** 65 – 74 years

☐ **G.** 75 – 84 years

☐ **H.** 85 years or older

8.5. What is your gender?

☐ **A.** Male

☐ **B.** Female

8.6. What is your current marital status?

☐ **A.** Married

☐ **B.** Co-habiting

☐ **C.** Divorced

☐ **D.** Widow / widower

☐ **E.** Separated

☐ **F.** Single (never married)

☐ **G.** Would rather not say

8.7. What is your visa category of immigration?

☐ **A.** Skilled immigrant

☐ **B.** Business immigrant

☐ **C.** Family immigrant

☐ **D.** Other

8.8. How long have you lived in Canada?

☐ **A.** 1 year or less

☐ **B.** 2 – 5 years

☐ **C.** 6 – 10 years

☐ **D.** 11 – 20 years

☐ **E.** 21 years or over

8.9. What is your highest level of education?

☐ **A.** No schooling

☐ **B.** Primary school

☐ **C.** Secondary school

☐ **D.** Professional training

☐ **E.** College

☐ **F.** University

☐ **G.** Post-graduate

8.10. What is your current employment status?

☐ **A.** Employed full-time (35 hours or more per week)

☐ **B.** Employed part-time (less than 35 hours per week)

☐ **C.** Employer or self-employed

☐ **D.** Retired

☐ **E.** Unpaid work

☐ **F.** Unemployed

8.11. What is your current primary occupation?

☐ **A.** Manager or administrator

☐ **B.** Professional (in government, legislation, science, engineering, education, health, enterprise, business, trade, transportation, service, sport and etc.)

☐ **C.** Labourer or farmer

☐ **D.** Student

☐ **E.** Volunteer

☐**F.** Other (please specify): _____

☐**G.** No occupation

8.12. What is your current religion?

☐**A.** Buddhism

☐**B.** Christianity

☐**C.** Islam

☐**D.** Judaism

☐**E.** Other (please specify): _____

☐**F.** No religion

8.13. How much was your personal gross income (income before tax deduction) past year?

☐**A.** Less than $30,000

☐**B.** $30,000 – $49,999

☐**C.** $50,000 – $69,999

☐**D.** $70,000 – $99,999

☐**E.** $100,000 or more

☐**F.** Do not know

Thank you for taking the time to complete this questionnaire! Your insight and information are very valuable to us.

Please use the space below to provide additional comments on how we might improve our job. If you have any further questions or concerns about this survey, please contact Ning Tang at E-mail: tang0139@flinders.edu.au or telephone: (819) 420-1691 or mobile phone: 819-708-3099. Thank you so much!

Healthy Eating !

Healthy Living !

Questionnaire multiculturel sur le changement de mode de vie
(Le test-pilote)

🍁 Canada Multiculturel 🍁

1. Introduction

Merci de participer volontairement au test-pilote d'un questionnaire multiculturel sur les changements de mode de vie des immigrants anglophones, francophones ou sinophones à Ottawa et Gatineau. Ce test-pilote prend environ 20-30 minutes à réaliser. Merci de n'écrire votre nom, ni des infos personnelles sur l'une des pages; Ce questionnaire est strictement anonyme: personne ne sera pas en mesure d'identifier les répondants. Nous vous remerions si vous répondez aux questions le plus honnêtement possible et, également, respectez la vie privée des autres en remlissant le questionnaire.

Vous recevrez 20 $ après avoir répondu au questionnaire du test-pilote à deux reprises.

Prière de lire les directives pour les réponses au début de la page suivante. Il n'y a pas de bonnes ni de mauvaises réponses à ce questionnaire.

Vous êtes encouragés à répondre à toutes les questions. Il vous sera également possible de demander de l'aide au chercheur principal. Après avoir complété le questionnaire, vous pourrez demander au chercheur un résumé du rapport final. Merci beaucoup.

2. Coordonnées du chercheur

Ning Tang (chercheur principal), le courriel: tang0139@flinders.edu.au, le téléphone: 819-420-1691, le téléphone cellulaire: 819-708-3099, l'adresse: 21-76 rue Richard, Gatineau, Québec J8Y 4Z2, Canada, DrSP (doctorat en santé publique), étudiant au département de santé publique, l'école de médecine, l'université Flinders en Australie. Le directeur principal de thèse de Ning Tang: l'A/Professeur Colin MacDougall (le courriel: colin.macdougall@flinders.edu.au) à l'École de médecine, l'université Flinders en Australie.

3. Soumission du questionnaire

Merci de retourner ce questionnaire complété au chercheur principal, Ning Tang.

Directives pour les réponses:
Pour chaque question, marquez votre réponse avec un crayon noir. **Cochez une seule case parmi les cases disponibles à chaque question. Il est possible parfois de cocher toutes les cases qui s'appliquent si cela est demandé.**

Marque appropriée: ☐X

Section 1: Changement lié à la consommation du tabac

1. 1. Changement de comportement lié au tabac:

1.1.1. Lequel des énoncés suivants vous décrit le mieux?

☐ **A.** Vous n'avez jamais fumé la cigarette

☐ **B.** Vous avez fumé avant d'arriver au Canada, mais vous avez cessé après votre arrivée

☐ **C.** Vous n'avez pas fumé avant d'arriver au Canada, mais vous avez commencé à fumer après votre arrivée

☐ **D.** Si vous avez fumé avant d'arriver et depuis votre arrivée au Canada → répondez à la question **1.1.1.1.** et à la question **1.1.1.2.** ci-dessous ⬇

> **1.1.1.1.** Dans la **dernière année avant d'arriver** au Canada, en moyenne, combien de cigarettes avaiez-vous fumées **chaque jour**?
>
> ☐ **a.** 1 – 10 (moins d'un paquet)
>
> ☐ **b.** 11 – 20 (un paquet)
>
> ☐ **c.** 21 – 40 (deux paquets)
>
> ☐ **d.** 41 ou plus (plus de deux paquets)
>
> ☐ **e.** Ne savez pas

> **1.1.1.2.** Au cours de la **dernière année** au Canada, en moyenne, combien de cigarettes fumiez-vous **chaque jour**?
>
> ☐ **a.** 1 – 10 (moins d'un paquet)
>
> ☐ **b.** 11 – 20 (un paquet)
>
> ☐ **c.** 21 – 40 (deux paquets)
>
> ☐ **d.** 41 ou plus (plus de deux paquets)
>
> ☐ **e.** Ne savez pas

1.2. Le changement de croyance de fumer:

1.2.1. Avant votre arrivée au Canada, laquelle de ces affirmations décrit le mieux votre croyance en ce qui concerne la cigarette?

☐**A.** Fumer la cigarette est **extrêmement mauvais** pour la santé

☐**B.** Fumer la cigarette est **très mauvais** pour la santé

☐**C.** Fumer la cigarette est **mauvais** pour la santé

☐**D.** Fumer la cigarette est **peu mauvais** pour la santé

☐**E.** Fumer la cigarette est **très peu mauvais** pour la santé

☐**F.** Fumer la cigarette **n'est pas mauvais** pour la santé

☐**G.** Ne savez pas

1.2.2. Depuis votre arrivée au Canada, laquelle de ces affirmations décrit le mieux votre croyance en ce qui concerne la cigarette?

☐**A.** Fumer la cigarette est **extrêmement mauvais** pour la santé

☐**B.** Fumer la cigarette est **très mauvais** pour la santé

☐**C.** Fumer la cigarette est **mauvais** pour la santé

☐**D.** Fumer la cigarette est **peu mauvais** pour la santé

☐**E.** Fumer la cigarette est **très peu mauvais** pour la santé

☐**F.** Fumer la cigarette **n'est pas mauvais** pour la santé

☐**G.** Ne savez pas

Section 2: Changement lié à la consommation de l'alcool

2. 1. Changement comportemental lié à la consommation de l'alcool:

2.1.1. Lequel des énoncés suivants vous décrit le mieux?

☐**A.** Vous n'avez jamais bu de l'alcool (y compris toute boisson alcoolisée)

☐**B.** Vous avez bu de l'alcool avant d'arriver au Canada, mais vous avez cessé après votre arrivée

☐**C.** Vous n'avez pas bu de l'alcool avant d'arriver au Canada, mais vous avez commencé à boire de l'alcool après votre arrivée

☐**D.** Si vous avez bu de l'alcool avant d'arriver et depuis votre arrivée au Canada ⟶ répondez à la question **2.1.1.1.** et à la question **2.1.1.2.** ci-dessous ⬇

    2.1.1.1. Dans la **dernière année avant d'arriver** au Canada, en moyenne, quelle quantité de l'alcool (bière, vin) aviez-vous bu **chaque jour**?

    ☐**a.** 1/2 bouteille de bière ou moins, ou 1/2 verre de vin ou moins

☐**b.** 1 – 1.5 bouteille de bière, ou 2 – 3 verres de vin

☐**c.** 2 – 3 bouteilles de bière, ou 4 – 6 verres de vin

☐**d.** 4 bouteilles de bière ou plus, ou 7 – 8 verres de vin ou plus

☐**e.** Ne savez pas

2.1.1.2. Au cours de la **dernière année** au Canada, en moyenne, quelle quantité de l'alcool (bière, vin) buvez-vous **chaque jour**?

☐**a.** 1/2 bouteille de bière ou moins, ou un verre à vin ou moins

☐**b.** 1 – 1.5 bouteille de bière, ou 2 – 3 verres de vin

☐**c.** 2 – 3 bouteilles de bière, ou 4 – 6 verres de vin

☐**d.** 4 bouteilles de bière ou plus, ou 7 – 8 verres de vin ou plus

☐**e.** Ne savez pas

2.2. Le changement de croyance de consommation d'alcool:

2.2.1. Avant votre arrivée au Canada, laquelle de ces affirmations décrit le mieux votre croyance en ce qui concerne l'alcool?

☐**A.** Boire de l'alcool est **<u>extrêmement mauvais</u>** pour la santé

☐**B.** Boire de l'alcool est **<u>très mauvais</u>** pour la santé

☐**C.** Boire de l'alcool est **<u>mauvais</u>** pour la santé

☐**D.** Boire de l'alcool est **<u>peu mauvais</u>** pour la santé

☐**E.** Boire de l'alcool est **<u>très peu mauvais</u>** pour la santé

☐**F.** Boire de l'alcool **<u>n'est pas mauvais</u>** pour la santé

☐**G.** Ne savez pas

2.2.2. Depuis votre arrivée au Canada, laquelle de ces affirmations décrit le mieux votre croyance en ce qui concerne l'alcool?

☐**A.** Boire de l'alcool est **<u>extrêmement mauvais</u>** pour la santé

☐**B.** Boire de l'alcool est **<u>très mauvais</u>** pour la santé

☐**C.** Boire de l'alcool est **<u>mauvais</u>** pour la santé

☐**D.** Boire de l'alcool est **<u>peu mauvais</u>** pour la santé

☐**E.** Boire de l'alcool est **<u>très peu mauvais</u>** pour la santé

☐**F.** Boire de l'alcool **<u>n'est pas mauvais</u>** pour la santé

☐**G.** Ne savez pas

Section 3: Changement lié à l'humeur

3.1. **C**hangement de statut lié à l'humeur:

3.1.1. Avant votre arrivée au Canada, comment décririez-vous votre humeur générale?

☐**A.** Très décontractée

☐**B.** Décontracté

☐**C.** Peu décontractée

☐**D.** Neutre (ni décontractée n`inquiète)

☐**E.** Peu inquiète

☐**F.** Inquiète

☐**G.** Très inquiète

☐**H.** Ne savez pas

3.1.2. Depuis votre arrivée au Canada, comment décririez-vous votre humeur générale?

☐**A.** Très décontractée

☐**B.** Décontractée

☐**C.** Peu décontractée

☐**D.** Neutre (ni décontractée n`inquiète)

☐**E.** Peu inquiète

☐**F.** Inquiète

☐**G.** Très inquiète

☐**H.** Ne savez pas

3.2. Changement de croyance lié à l'humeur:

3.2.1. Avant votre arrivée au Canada, laquelle de ces affirmations décrit le mieux votre croyance en ce qui concerne l'inquiétude.

☐**A.** L'inquiétude affecte **<u>extrêmement négativement</u>** la santé

☐**B.** L'inquiétude affecte **<u>très négativement</u>** la santé

☐**C.** L'inquiétude affecte **<u>négativement</u>** la santé

☐**D.** L'inquiétude affecte **<u>peu négativement</u>** la santé

☐**E.** L'inquiétude affecte **<u>très peu négativement</u>** la santé

☐**F.** L'inquiétude **<u>n'</u>**affecte **<u>pas négativement</u>** la santé

☐**G.** Ne savez pas

3.2.2. Depuis votre arrivée au Canada, laquelle de ces affirmations décrit le mieux votre croyance en ce qui concerne l'inquiétude?

☐ **A.** L'inquiétude affecte **extrêmement négativement** la santé

☐ **B.** L'inquiétude affecte **très négativement** la santé

☐ **C.** L'inquiétude affecte **négativement** la santé

☐ **D.** L'inquiétude affecte **peu négativement** la santé

☐ **E.** L'inquiétude affecte **très peu négativement** la santé

☐ **F.** L'inquiétude **n'**affecte **pas négativement** la santé

☐ **G.** Ne savez pas

Section 4: Changement lié au sommeil

4.1. C**hangement de comportement lié au sommeil:**
4.1.1. Changement du temps de sommeil:
4.1.1.1. Avant votre arrivée au Canada, en moyenne, combien d'heures de sommeil aviez-vous **chaque jour**?

☐ **A.** 6 heures ou moins

☐ **B.** 7 – 8 heures

☐ **C.** 9 heures

☐ **D.** 10 heures ou plus

☐ **E.** Ne savez pas

4.1.1.1. Depuis votre arrivée au Canada, en moyenne, combien d'heures de sommeil avez-vous **chaque jour**?

☐ **A.** 6 heures ou moins

☐ **B.** 7 – 8 heures

☐ **C.** 9 heures

☐ **D.** 10 heures ou plus.

☐ **E.** Ne savez pas

4.1.2. Changement de la qualité de sommeil:
4.1.2.1. Avant votre arrivée au Canada, comment était la qualité de votre sommeil **chaque jour**?

☐ **A.** Excellente

☐ **B.** Très bonne

☐ **C.** Bonne

☐**D.** Moyenne (ni bonne ni mauvaise)

☐**E.** Mauvaise

☐**F.** Très mauvaise

☐**G.** Extrêmement mauvaise

☐**H.** Ne savez pas

4.1.2.2. Depuis votre arrivée au Canada, comment est la qualité de votre sommeil **chaque jour**?

☐**A.** Excellente

☐**B.** Très bonne

☐**C.** Bonne

☐**D.** Moyenne (ni bonne ni mauvaise)

☐**E.** Mauvaise

☐**F.** Très mauvaise

☐**G.** Extrêmement mauvaise

☐**H.** Ne savez pas

4.2. Changement de croyance lié au sommeil:
4.2.1. Avant votre arrivée au Canada, laquelle de ces affirmations décrit le mieux votre croyance en ce qui concerne au sommeil?

☐**A.** Le sommeil quotidien de haute qualité au moins de 7-8 heures **contribue extrêmement** à la santé.

☐**B.** Le sommeil quotidien de haute qualité au moins de 7-8 heures **contribue très bien** à la santé

☐**C.** Le sommeil quotidien de haute qualité au moins de 7-8 heures **contribue** à la santé

☐**D.** Le sommeil quotidien de haute qualité au moins de 7-8 heures **contribue peu** à la santé

☐**E.** Le sommeil quotidien de haute qualité au moins de 7-8 heures **contribue très peu** à la santé

☐**F.** Le sommeil quotidien de haute qualité au moins de 7-8 heures **ne contribue pas** à la santé

☐**G.** Ne savez pas

4.2.2. Depuis votre arrivée au Canada, laquelle de ces affirmations décrit le mieux votre croyance en ce qui concerne au sommeil?

☐ **A.** Le sommeil quotidien de haute qualité au moins de 7-8 heures **contribue extrêmement** à la santé

☐ **B.** Le sommeil quotidien de haute qualité au moins de 7-8 heures **contribue très bien** à la santé

☐ **C.** Le sommeil quotidien de haute qualité au moins de 7-8 heures **contribue** à la santé

☐ **D.** Le sommeil quotidien de haute qualité au moins de 7-8 heures **contribue peu** à la santé

☐ **E.** Le sommeil quotidien de haute qualité au moins de 7-8 heures **contribue très peu** à la santé

☐ **F.** Le sommeil quotidien de haute qualité au moins de 7-8 heures **ne contribue pas** à la santé

☐ **G.** Ne savez pas

Section 5: Changement lié à l'activité physique

5.1. C**hangement de comportement lié à l'activité physique:**

5.1.1. Changement du temps d'exercice physique:

5.1.1.1. Avant votre arrivée au Canada, en moyenne, combien de temps consacriez-vous aux exercices physiques **chaque semaine**?

☐ **A.** Moins d`une heure

☐ **B.** 1 – 2 heures

☐ **C.** 3 – 4 heures

☐ **D.** 5 – 6 heures

☐ **E.** Plus de 6 heures

☐ **F.** Ne savez pas

5.1.1.2. Depuis votre arrivée au Canada, en moyenne, combien de temps consacrez-vous aux exercices physiques **chaque semaine**?

☐ **A.** Moins d`une heure

☐ **B.** 1 – 2 heures

☐ **C.** 3 – 4 heures

☐ **D.** 5 – 6 heures

☐ **E.** Plus de 6 heures

☐ **F.** Ne savez pas

5.1.2. Changement des niveaux d'activité physique:

5.1.2.1. Avant votre arrivée au Canada, laquelle de ces descriptions représente le mieux votre niveau d'activité physique **d'une journée**?

☐**A. Très faible** (toujours assis au travail ou à la maison durant la journée, très peu de marche ou de ménage)

☐**B. Faible** (souvent assis au travail ou à la maison durant la journée, parfois debout, peu de marche et de ménage)

☐**C. Modéré** (parfois assis au travail ou à la maison durant la journée, parfois une marche, avec des activités d'environ une à deux heures, comme faire fonctionner de la machinerie ou de l'équipement lourd, faire du jardinage, du ménage, jouer à la pétanque, jouer au golf, etc.)

☐**D. Fort** (souvent debout au travail ou à la maison durant la journée, souvent une marche, avec des activités modérées à vigoureuses, comme randonnée pédestre, yoga, TaiJiQuan Chinois, exercices du corps pour la santé, etc.)

☐**E**. **Très fort** (toujours debout au travail ou à la maison durant la journée, très souvent une marche, avec un haut niveau d'activités vigoureuses à la fois au travail ou pendant les heures de loisir, comme course, soccer, natation, ski, etc.)

☐**F.** Ne savez pas

5.1.2.2. Depuis votre arrivée au Canada, laquelle de ces descriptions représente le mieux votre niveau d'activité physique **d'une journée**?

☐**A. Très faible** (toujours assis au travail ou à la maison durant la journée, très peu de marche ou de ménage)

☐**B. Faible** (souvent assis au travail ou à la maison durant la journée, parfois debout, peu de marche et de ménage)

☐**C. Modéré** (parfois assis au travail ou à la maison durant la journée, parfois une marche, avec des activités d'environ un à deux heures, comme faire fonctionner de la machinerie ou de l'équipement lourd, faire du jardinage, du ménage, jouer à la pétanque, jouer au golf, etc.)

☐**D. Fort** (souvent debout au travail ou à la maison durant la journée, souvent une marche, avec des activités modérées à vigoureuses, comme randonnée pédestre, yoga, TaiJiQuan Chinois, exercices corps pour la santé, etc.)

☐**E**. **Très fort** (toujours debout au travail ou à la maison durant la journée, très souvent une marche, avec un haut niveau d'activités vigoureuses à la fois au travail ou pendant les heures de loisir, comme course, soccer, natation, ski, etc.)

☐**F.** Ne savez pas

5.1.3. Changement des articles d'exercice physique:

5.1.3.1. Avant votre arrivée au Canada, quels exercices physiques faisiez-vous **chaque semaine**? *Cochez toutes les cases qui s'appliquent ou écrivez votre réponse à la case prévue pour cela si nécessaire.*

☐**A.** Marche   ☐**G.** Soccer   ☐**M.** Natation

☐**B.** Jogging / Course   ☐**H.** Basket-ball   ☐**N.** Yoga.

☐**C.** Vélo   ☐**I.** Hockey   ☐**O.** TaiJiQuan/QiGong Chinois

☐**D.** Randonnée pédestre ☐**J.** Tennis   ☐**P.** Exercice du corps pour santé

☐**E.** Ski   ☐**K.** Tennis de table   ☐**Q.** Autre (précisez):_____

☐**F.** Patinage   ☐**L.** Badminton   ☐**R.** Aucun exercice

5.1.3.2. Depuis votre arrivée au Canada, quelles exercices physiques faites-vous **chaque semaine**? *Cochez toutes les cases qui s'appliquent ou écrivez votre réponse à la case prévue pour cela si nécessaire.*

☐**A.** Marche   ☐**G.** Soccer   ☐**M.** Natation

☐**B.** Jogging / Course   ☐**H.** Basket-ball   ☐**N.** Yoga.

☐**C.** Vélo   ☐**I.** Hockey   ☐**O.** TaiJiQuan/QiGong Chinois

☐**D.** Randonnée pédestre ☐**J.** Tennis   ☐**P.** Exercice du corps pour santé

☐**E.** Ski   ☐**K.** Tennis de table   ☐**Q.** Autre (précisez):_____

5.2. Changement de croyance lié à l'exercice physique:

5.2.1. Avant votre arrivée au Canada, laquelle de ces affirmations décrit le mieux votre croyance en ce qui concerne l'exercice physique hebdomadaire?

☐**A.** Les exercices mentionnés ci-dessus peuvent **promouvoir extrêmement** la santé

☐**B.** Les exercices mentionnés ci-dessus peuvent **promouvoir très bien** la santé

☐**C.** Les exercices mentionnés ci-dessus peuvent **promouvoir** la santé

☐**D.** Les exercices mentionnés ci-dessus peuvent **peu promouvoir** la santé

☐**E.** Les exercices mentionnés ci-dessus peuvent **très peu de promouvoir** la santé

☐**F.** Les exercices mentionnés ci-dessus **ne** peuvent **pas promouvoir** la santé

☐**G.** Ne savez pas

5.2.2. Depuis votre arrivée au Canada, laquelle de ces affirmations décrit le mieux votre croyance en ce qui concerne l'exercice physique hebdomadaires?

☐**A.** Les exercices mentionnés ci-dessus peuvent **promouvoir extrêmement** la santé

☐**B.** Les exercices mentionnés ci-dessus peuvent **promouvoir très bien** la santé

☐**C.** Les exercices mentionnés ci-dessus peuvent **promouvoir** la santé

☐**D.** Les exercices mentionnés ci-dessus peuvent **peu promouvoir** la santé

☐**E.** Les exercices mentionnés ci-dessus peuvent **très peu de promouvoir** la santé

☐**F.** Les exercices mentionnés ci-dessus **ne** peuvent **pas promouvoir** la santé

☐**G.** Ne savez pas

Section 6: Changement lié à l'alimention

6. 1. C**hangement de comportement lié à l'alimentation**
6.1.1. Changement de consommation des **aliments diététiques:**
Depuis votre arrivée au Canada, votre consommation des **aliments diététiques** (i.e. viande maigre, poisson, poulet, fruits de mer, oeuf, fruits et légumes frais, etc.) a-t-elle changé **chaque semaine**?

☐**A.** Oui a changé ↘ passez à la question **6.1.1.1.** et à la question **6.1.1.2.** ci-dessous ↓

☐**B.** N'a pas changé

☐**C..** Ne savez pas

6.1.1.1. Depuis votre arrivée au Canada, la consommation de quels **aliments diététiques** avez-vous **augmentée chaque semaine**? *Cochez toutes les cases qui s'appliquent ou précisez votre réponse à la case prévue pour cela si nécessaire.*

☐**a.** Viande maigre ☐**h.** Lait de peu graisse ☐**o.** Pomme de terre

☐**b.** Poisson ☐**i.** Yogourt ☐**p.** Patate douce

☐**c.** Poulet ☐**j.** Tofu ☐**q.** Légumes frais

☐**d.** Fruits de mer ☐**k.** Riz ☐**r.** Fruits frais

☐**e.** Crevette ☐**l.** Pâtes ☐**s.** Jus de fruits naturel

☐**f.** Oeuf ☐**m.** Farine d'avoine ☐**t.** Thé

☐**g.** Miel ☐**n.** Maïs ☐**u.** Autre (précisez):_____

6.1.1.2. Depuis votre arrivée au Canada, la consommation de quels **aliments diététiques** avez-vous **diminuée chaque semaine**? *Cochez toutes les cases qui s'appliquent ou écrivez votre réponse à la case prévue pour cela si nécessaire.*

☐**a.** Viande maigre ☐**h.** Lait de peu graisse ☐**o.** Pomme de terre

☐**b.** Poisson ☐**i.** Yogourt ☐**p.** Patate douce

☐**c.** Poulet ☐**j.** Tofu ☐**q.** Légumes frais

☐**d.** Fruits de mer ☐**k.** Riz ☐**r.** Fruits frais

☐**e.** Crevette ☐**l.** Pâtes ☐**s.** Jus de fruits naturel

☐**f.** Oeuf ☐**m.** Farine d'avoine ☐**t.** Thé

☐**g.** Miel ☐**n.** Maïs ☐**u.** Autre (précisez):_____

6.1.2. Changement de consommation des **malbouffes** et des **aliments industrialisés:**
Depuis votre arrivée au Canada, votre consommation des **malbouffes** et des **aliments industrialisés** (i.e. viandes grasses, aliments frits, aliments en conserve, jus de fruits riches en sucre, etc) a-t-elle changé **chaque semaine**?

☐ **A.** Oui a changé ↳ passez à la question **6.1.2.1.** et à la question **6.1.2.2.** ci-dessous ⬇

☐ **B.** N'a pas changé.

☐ **C.** Ne savez pas

> **6.1.2.1.** Depuis votre arrivée au Canada, la consommation de quels **malbouffes** et **aliments industrialisés** avez-vous **augmentée chaque semaine**? *Cochez toutes les cases qui s'appliquent ou écrivez votre réponse à la case prévue pour cela si nécessaire.*
>
> ☐ **a.** Viandes grasses ☐ **h.** Gâteaux et desserts riches en sucre
>
> ☐ **b.** Aliments frits ☐ **i.** Bonbons et tablettes de chocolat
>
> ☐ **c.** Légumes marinés ☐ **j.** Eaux et boissons gazeuses
>
> ☐ **d.** Viandes salés ☐ **k.** Jus de fruits riches en sucre
>
> ☐ **e.** Saucisse et viande séchée ☐ **l.** Crème glacée et popsicle
>
> ☐ **f.** Croustilles, biscuits, nouilles instantanées ☐ **m.** Café avec sucre
>
> ☐ **g.** Aliments en conserve ☐ **n.** Autre (précisez): _____

> **6.1.2.2.** Depuis votre arrivée au Canada, la consommation de quels **malbouffes** et **aliments industrialisés** avez-vous **diminuée chaque semaine**? *Cochez toutes les cases qui s'appliquent ou écrivez votre réponse dans la case prévue pour cela si nécessaire.*
>
> ☐ **a.** Viandes grasses ☐ **h.** Gâteaux et desserts riches en sucre
>
> ☐ **b.** Aliments frits ☐ **i.** Bonbons et tablettes de chocolat
>
> ☐ **c.** Légumes marinés ☐ **j.** Eaux et boissons gazeuses
>
> ☐ **d.** Viandes salés ☐ **k.** Jus de fruits riches en sucre
>
> ☐ **e.** Saucisse et viande séchée ☐ **l.** Crème glacée et popsicle
>
> ☐ **f.** Croustilles, biscuits, nouilles instantanées ☐ **m.** Café avec sucre
>
> ☐ **g.** Aliments en conserve ☐ **n.** Autre (précisez): _____

6.2. Changement de croyance lié à l'alimentaire:
6.2.1. Avant votre arrivée au Canada, laquelle de ces affirmations décrit le mieux votre croyance en ce qui concerne les **aliments diététiques**?

☐ **A.** Les aliments diététiques mentionnés ci-dessus peuvent **promouvoir extrêmement** la santé

☐**B.** Les aliments diététiques mentionnés ci-dessus peuvent **promouvoir très bien** la santé

☐**C.** Les aliments diététiques mentionnés ci-dessus peuvent **promouvoir** la santé

☐**D.** Les aliments diététiques mentionnés ci-dessus peuvent **peu de promouvoir** la santé

☐**E.** Les aliments diététiques mentionnés ci-dessus peuvent **très peu de promouvoir** la santé

☐**F.** Les aliments diététiques mentionnés ci-dessus **ne** peuvent **pas promouvoir** la santé

☐**G.** Ne savez pas

6.2.2. Depuis votre arrivée au Canada, laquelle de ces affirmations le mieux votre croyance en ce qui concerne les **aliments diététiques**?

☐**A.** Les aliments diététiques mentionnés ci-dessus peuvent **promouvoir extrêmement** la santé

☐**B.** Les aliments diététiques mentionnés ci-dessus peuvent **promouvoir très bien** la santé

☐**C.** Les aliments diététiques mentionnés ci-dessus peuvent **promouvoir** la santé

☐**D.** Les aliments diététiques mentionnés ci-dessus peuvent **peu de promouvoir** la santé

☐**E.** Les aliments diététiques mentionnés ci-dessus peuvent **très peu de promouvoir** la santé

☐**F.** Les aliments diététiques mentionnés ci-dessus **ne** peuvent **pas promouvoir** la santé

☐**G.** Ne savez pas

6.2.3. Avant votre arrivée au Canada, laquelle de ces affirmations décrit le mieux votre croyance en ce qui concerne les **malbouffes** et les **aliments industrialisés**?

☐**A.** Les malbouffes et les aliments industrialisés mentionnés ci-dessus ont des **effets négatifs extrêmes** sur la santé

☐**B.** Les malbouffes et les aliments industrialisés mentionnés ci-dessus ont des **effets très négatifs** sur la santé

☐**C.** Les malbouffes et les aliments industrialisés mentionnés ci-dessus ont des **effets négatifs** sur la santé

☐**D.** Les malbouffes et les aliments industrialisés mentionnés ci-dessus ont **peu d'effets négatifs** sur la santé

☐**E.** Les malbouffes et les aliments industrialisés mentionnés ci-dessus ont **très peu d'effets négatifs** sur la santé

☐**F.** Les malbouffes et les aliments industrialisés mentionnés ci-dessus **n'ont pas d'effets négatifs** sur la santé

☐**G.** Ne savez pas

6.2.4. Depuis votre arrivée au Canada, laquelle de ces affirmations le mieux votre croyance en ce qui concerne les **malbouffes et** les **aliments industrialisés**?

☐**A.** Les malbouffes et les aliments industrialisés mentionnés ci-dessus ont des **effets négatifs extrêmes** sur la santé

☐**B.** Les malbouffes et les aliments industrialisés mentionnés ci-dessus ont des **effets très négatifs** sur la santé

☐**C.** Les malbouffes et les aliments industrialisés mentionnés ci-dessus ont des **effets négatifs** sur la santé

☐**D.** Les malbouffes et les aliments industrialisés mentionnés ci-dessus ont **peu d'effets négatifs** sur la santé

☐**E.** Les malbouffes et les aliments industrialisés mentionnés ci-dessus ont **très peu d'effets négatifs** sur la santé

☐**F.** Les malbouffes et les aliments industrialisés mentionnés ci-dessus **n'ont pas d'effets négatifs** sur la santé

☐**G.** Ne savez pas

Section 7: Changement lié à l'état de santé

7.1. Avant votre arrivée au Canada, comment estimiez-vous votre état de santé général?

☐**A.** Excellent

☐**B.** Très bon

☐**C.** Bon

☐**D.** Moyen (ni bon ni mauvais)

☐**E.** Mauvais

☐**F.** Très mauvais

☐**G.** Extrêmement mauvais

☐**H.** Ne savez pas

7.2. Depuis votre arrivée au Canada, comment estimez-vous votre état de santé général?

☐**A.** Excellent

☐**B.** Très bon

☐**C.** Bon

☐**D.** Moyen (ni bon ni mauvais)

☐**E.** Mauvais

☐**F.** Très mauvais

☐**G.** Extrêmement mauvais

☐**H.** Ne savez pas

Section 8: Questions démographiques

8.1. Quelle est votre langue maternelle?

☐**A.** Anglais

☐**B.** Français

☐**C.** Chinois

8.2. Quelle (s) langue (s) pouvez-vous parler? *__Cochez toutes les cases qui s'appliquent ou écrivez votre réponse dans la case prévue__* **pour cela si nécessaire.**

☐**A.** Anglais   ☐**C.** Chinois

☐**B.** Français   ☐**D.** Autre (précisez): _____

8.3. Quel est votre pays d`origine? _____

8.4. À quel groupe d'âge correspondez-vous?

☐**A.** 18 à 24 ans

☐**B.** 25 à 34 ans

☐**C.** 35 à 44 ans

☐**D.** 45 à 54 ans

☐**E.** 55 à 64 ans

☐**F.** 65 à 74 ans

☐**G.** 75 à 84 ans.

☐**H.** 85 ans ou plus

8.5. Quel est votre genre?

☐**A.** Homme

☐**B.** Femme

8.6. Quelle est présentement votre situation familiale?

☐**A.** Marié

☐**B.** Cohabitant

☐**C.** Divorcé

☐**D.** Veuve / Veuf

☐**E.** Séparé

☐**F.** Célibataire (jamais marié)

☐**G.** Ne préfèrez pas la dire

8.7. Quelle est votre catégorie de visa de l'immigration?

☐**A.** Immigrant indépendant

☐**B.** Immigrant économique

☐**C.** Immigrant familial

☐**D.** Autre

8.8. Depuis combien de temps vivez-vous au Canada?

☐**A.** Un an ou moins

☐**B.** 2 à 5 ans

☐**C.** 6 à 10 ans

☐**D.** 11 à 20 ans

☐**E.** 21 ans ou plus

8.9. Quel est votre plus haut niveau de scolarité?

☐**A.** Aucune scolarité

☐**B.** École primaire

☐**C.** École secondaire

☐**D.** Formation professionnelle

☐**E.** Collège

☐**F.** Université

☐**G.** Postuniversitaire

8.10. Quel est votre statut d'emploi actuel?

☐**A.** Employé à temps plein (35 heures ou plus par semaine)

☐**B.** Employé à temps partiel (moins de 35 heures par semaine)

☐**C.** Employeur ou travailleur autonome

☐**D.** Retraité

☐**E.** Travail non-rémunéré

☐**F.** Chômeur

8.11. Quel est votre occupation principale actuelle?

☐**A.** Gestionnaire ou administrateur

☐**B.** Professionnel (au sein du gouvernement, de la législation, de la science, de l'ingénierie, de l'éducation, de la santé, de l'entreprise, les affaires, le commerce, le transport, le service, le sport, etc.)

☐**C.** Ouvrier ou agriculteur

☐**D.** Étudiant

☐**E.** Bénévole

☐**F.** Autre (précisez) : _____

☐**G.** Aucune profession

8.12. Quelle est votre religion actuelle?

☐**A.** Bouddhisme

☐**B.** Christianisme

☐**C.** Islame

☐**D.** Judaisme

☐**E.** Autres (précisez) : _____

☐**F.** Aucune religion

8.13. Combien a été votre revenu brut personnel (revenu avant déductions fiscales) l'année passée?

☐**A.** Moins de 30,000 $

☐**B.** 30,000 $ à 49,999 $

☐**C.** 50,000 $ à 69,999 $

☐**D.** 70,000 $ à 99,999 $

☐**E.** 100,000 $ ou plus

☐**F.** Ne savez pas

Merci d'avoir pris le temps de remplir ce questionnaire! Votre perspicacité et vos informations sont très précieuses pour nous.

Utilisez l'espace ci-dessous pour fournir des commentaires supplémentaires sur la façon dont nous pourrions améliorer notre travail, s'il vous plaît. Si vous avez des questions ou des préoccupations au sujet de ce sondage, contactez Ning Tang par courriel: tang0139@flinders.edu.au ou par téléphone: (819) 420-1691 ou téléphone mobile: 819-708-3099. Merci beaucoup!

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多元文化的生活方式改变问卷
(小规模试验)

多元文化的加拿大

1．介绍

感谢你自愿参与在加拿大渥太华和加蒂诺市的这项小规模问卷试验，这是一份英文，法文或中文移民生活方式改变的多元文化问卷。这项问卷试验将需要大约20-30 分钟完成。请不要把你的名字，联系方式写在任何一页上；这份问卷是严格匿名的：没有任何回答者能够被识别。我们非常感谢你能真实地回答这些问题，并也能尊重其他人的隐私。

完成这一问卷两次后，你将获得 20 加元。

请读在下一页首端的回答问卷说明。没有不正确或错误的答案！

我们鼓励你回答所有的问题。你可以随时寻求主要研究者的帮助。完成这一问卷后，你可以要求获得最后研究报告的概要。非常感谢你！

2．联系信息

唐宁（主要研究者），电子邮箱：tang0139@flinders.edu.au ，电话：819-420-1691，手机：819-708-3099，地址：21-76 rue Richard, Gatineau, Québec J8Y 4Z2, Canada，澳大利亚弗林德斯大学医学分校公共卫生系公共卫生学博士生。唐宁的主要导师：澳大利亚弗林德斯大学医学分校科林·麦克杜格尔副教授（电子邮箱：colin.macdougall@flinders.edu.au）。

3．递交信息

请将本问卷交回给主要研究者：唐宁。

回答指导：

对每一个问题，用一支黑色铅笔标记你的答案。**在每题的答案选择框中只标记一个框，除非在一些问题中的特别回答指导告诉你标记所有适合的框。**

适当的标记： $\boxed{\text{X}}$

第一部分：吸烟改变

1．1．吸烟行为改变：

1.1.1．下列哪项最能描述你？

☐**A.** 你从不吸烟

☐**B.** 你在抵达加拿大前吸烟，但抵达后戒烟

☐**C.** 你在抵达加拿大前不吸烟，但抵达后开始吸烟

☐**D.** 如果你在抵达加拿大前和抵达以来都吸烟 ➞ 请到下面的问题 **1.1.1.1.**和问题 **1.1.1.2.** ⬇

　　1.1.1.1. 在抵达加拿大前的**最后一年中**，你平均**每天**抽多少支香烟？

　　☐**a.** 1－10 支（少于一包）

　　☐**b.** 11 － 20 支（一包）

　　☐**c.** 21－ 40 支（两包）

　　☐**d.** 41支 或 以上（超过两包）

　　☐**e.** 不知道

　　1.1.1.2.**过去的一年中**在加拿大，你平均**每天**抽多少支香烟？

　　☐**a.** 1－10 支（少于一包）

　　☐**b.** 11 － 20 支（一包）

　　☐**c.** 21－ 40 支（两包）

　　☐**d.** 41支 或 以上（超过两包）

　　☐**e.** 不知道

1．2．吸烟理念改变：

1.2.1．在抵达加拿大之前，下列陈述中的哪项最能描述你的吸烟理念？

☐**A.** 吸烟对健康**极其有害**

☐**B.** 吸烟对健康**非常有害**

☐**C.** 吸烟对健康**有害**

☐**D.** 吸烟对健康**轻微有害**

☐**E.** 吸烟对健康**非常轻微有害**

☐**F.** 吸烟对健康**无害**

☐**G.** 不知道

1.2.2. 自从抵达加拿大以来，下列陈述中的哪项最能描述你的吸烟理念？

☐**A.** 吸烟对健康**极其有害**

☐**B.** 吸烟对健康**非常有害**

☐**C.** 吸烟对健康**有害**

☐**D.** 吸烟对健康**轻微有害**

☐**E.** 吸烟对健康**非常轻微有害**

☐**F.** 吸烟对健康**无害**

☐**G.** 不知道

第二部分：饮用酒消耗改变

2.1. 酒精消耗行为改变：

2.1.1. 下列哪项最能描述你？

☐**A.** 你从不饮酒（包括任何含酒精的饮料）

☐**B.** 你在抵达加拿大前饮酒，但抵达后戒酒

☐**C.** 你在抵达加拿大前不饮酒，但抵达后开始饮酒

☐**D.** 如果你在抵达加拿大前和抵达以来都饮酒 ➡ 请到下面的问题 **2.1.1.1.**和问题 **2.1.1.2.** ⬇

　　2.1.1.1. 在抵达加拿大前的**最后一年中**，你平均**每天**饮多少酒(啤酒，白酒)？

　　☐**a.** 少于或等于0.5瓶啤酒，或少于或等于1杯白酒

　　☐**b.** 1 – 2瓶啤酒，或2 – 3杯白酒

☐**c.** 2 – 3瓶啤酒，或4 – 6杯白酒

☐**d.** 4瓶啤酒或以上，或7 – 8杯白酒或以上

☐**e.** 不知道

2.1.1.2. **过去的一年中**在加拿大，你平均**每天**饮多少酒(啤酒，白酒)？

☐**a.** 少于或等于0.5瓶啤酒，或少于或等于1杯白酒

☐**b.** 1 – 2瓶啤酒，或2 – 3杯白酒

☐**c.** 2 – 3瓶啤酒，或4 – 6杯白酒

☐**d.** 4瓶啤酒或以上，或7 – 8杯白酒或以上

☐**e.** 不知道

2.2. 酒精消耗理念改变：

2.2.1. 在抵达加拿大之前，下列陈述中的哪项最能描述你的饮酒理念？

☐**A.** 饮酒对健康**极其有害**

☐**B.** 饮酒对健康**非常有害**

☐**C.** 饮酒对健康**有害**

☐**D.** 饮酒对健康**轻微有害**

☐**E.** 饮酒对健康**非常轻微有害**

☐**F.** 饮酒对健康**无害**

☐**G.** 不知道

2.2.1. 自从抵达加拿大以来，下列陈述中的哪项最能描述你的饮酒理念？

☐**A.** 饮酒对健康**极其有害**

☐**B.** 饮酒对健康**非常有害**

☐**C.** 饮酒对健康**有害**

☐**D.** 饮酒对健康**轻微有害**

☐**E.** 饮酒对健康**非常轻微有害**

☐**F.** 饮酒对健康**无害**

☐**G.** 不知道

第三部分：情绪改变

3.1. 情绪状态改变：

3.1.1. 在抵达加拿大之前，你怎样描述你总体的情绪状态？

☐**A.** 非常轻松

☐**B.** 轻松

☐**C.** 较轻松

☐**D.** 中等（既不轻松也不焦虑）

☐**E.** 较焦虑

☐**F.** 焦虑

☐**G.** 非常焦虑

☐**H.** 不知道

3.1.2. 自从抵达加拿大以来，你怎样描述你总体的情绪状态？

☐**A.** 非常轻松

☐**B.** 轻松

☐**C.** 较轻松

☐**D.** 中等（既不轻松也不焦虑）

☐**E.** 较焦虑

☐**F.** 焦虑

☐**G.** 非常焦虑

☐**H.** 不知道

3.2. 情绪理念改变：

3.2.1. 在抵达加拿大之前，下列陈述中的哪项最能描述你的焦虑理念？

☐**A.** 焦虑对健康<u>**有极其强烈的负面影响**</u>

☐**B.** 焦虑对健康<u>**有强烈的负面影响**</u>

☐**C.** 焦虑对健康<u>**有负面影响**</u>

☐**D.** 焦虑对健康<u>**有轻微的负面影响**</u>

☐**E.** 焦虑对健康<u>**有非常轻微的负面影响**</u>

☐**F.** 焦虑对健康<u>没有负面影响</u>

☐**G.** 不知道

3.2.2. 自从抵达加拿大以来，下列陈述中的哪项最能描述你的焦虑理念？

☐**A.** 焦虑对健康<u>**有极其强烈的负面影响**</u>

☐**B.** 焦虑对健康<u>**有强烈的负面影响**</u>

☐**C.** 焦虑对健康<u>**有负面影响**</u>

☐**D.** 焦虑对健康<u>**有轻微的负面影响**</u>

☐**E.** 焦虑对健康<u>**有非常轻微的负面影响**</u>

☐**F.** 焦虑对健康<u>**没有负面影响**</u>

☐**G.** 不知道

第四部分：睡眠改变

4.1. 睡眠行为改变：
4.1.1. 睡眠时间改变：
4.1.1.1. 在抵达加拿大之前，你平均**每天**睡多少小时？

☐**A.** 少于或等于6小时

☐**B.** 7 – 8小时

☐**C.** 9小时

☐**D.** 10小时或以上

☐**E.** 不知道

4.1.1.2. 自从抵达加拿大以来，你平均**每天**睡多少小时？

☐**A.** 少于或等于6小时

☐**B.** 7 – 8小时

☐**C.** 9小时

☐**D.** 10小时或以上

☐**E.** 不知道

4.1.2. 睡眠质量改变：

4.1.2.1. 在抵达加拿大之前，你**每天**的睡眠质量怎样？

☐**A.** 极好

☐**B.** 很好

☐**C.** 好

☐**D.** 一般（既不好也不差）

☐**E.** 差

☐**F.** 很差

☐**G.** 极差

☐**H.** 不知道

4.1.2.2. 自从抵达加拿大以来，你**每天**的睡眠质量怎样？

☐**A.** 极好

☐**B.** 很好

☐**C.** 好

☐**D.** 一般（既不好也不差）

☐**E.** 差

☐**F.** 很差

☐**G.** 极差

☐**H.** 不知道

4.2. **睡眠理念改变：**

4.2.1. 在抵达加拿大之前，下列陈述中的哪项最能描述你的睡眠理念？

☐**A.** 每天至少7-8个小时高质量的睡眠**极其有助于**健康

☐**B.** 每天至少 7-8 个小时高质量的睡眠**非常有助于**健康

☐**C.** 每天至少 7-8 个小时高质量的睡眠**有助于**健康

☐**D.** 每天至少 7-8 个小时高质量的睡眠**轻微有助于**健康

☐**E.** 每天至少 7-8 个小时高质量的睡眠**非常轻微有助于**健康

☐**F.** 每天至少 7-8 个小时高质量的睡眠**不助于**健康

☐**G.** 不知道

4.2.2. 自从抵达加拿大以来，下列陈述中的哪项最能描述你的睡眠理念？

☐ **A.** 每天至少7-8个小时高质量的睡眠**极其有助于**健康

☐ **B.** 每天至少 7-8 个小时高质量的睡眠**非常有助于**健康

☐ **C.** 每天至少 7-8 个小时高质量的睡眠**有助于**健康

☐ **D.** 每天至少 7-8 个小时高质量的睡眠**轻微有助于**健康

☐ **E.** 每天至少 7-8 个小时高质量的睡眠**非常轻微有助于**健康

☐ **F.** 每天至少 7-8 个小时高质量的睡眠**不助于**健康

☐ **G.** 不知道

第五部分：身体活动改变

5.1. 身体活动行为改变：
5.1.1. 身体锻炼时间改变：
5.1.1.1. 在抵达加拿大之前，你平均**每周**进行多长时间的身体锻炼？

☐ **A.** 少于1小时

☐ **B.** 1 - 2小时

☐ **C.** 3 - 4小时

☐ **D.** 5 - 6小时

☐ **E.** 6小时以上

☐ **F.** 不知道

5.1.1.2. 自从抵达加拿大以来，你平均**每周**进行多长时间的身体锻炼？

☐ **A.** 少于1小时

☐ **B.** 1 - 2小时

☐ **C.** 3 - 4小时

☐ **D.** 5 - 6小时

☐ **E.** 6小时以上

☐ **F.** 不知道

5.1.2. 身体活动水平改变：

5.1.2.1. 在抵达加拿大之前，下列描述中的哪项最能代表你**一天**的身体活动水平？

☐**A. 很轻**（一天在工作或家中总是坐着，有非常少的走动和做很少一点家务）

☐**B. 轻**（一天在工作或家中经常坐着，有时站立，有少量的走动和做少量的家务）

☐**C. 中度**（一天在工作或家中有时坐着或站立，有时走动，有一到两小时的活动，如操作机器和重设备，园艺，做家务，保龄球，打高尔夫球等）

☐**D. 中重度**（一天在工作或家中经常站立，经常走动，有中度到剧烈的活动，如徒步旅行，瑜珈，中国太极拳，健身运动等）

☐**E. 重度**（一天在工作或家中总是站立，频繁走动，在工作或闲暇时间有高水平的剧烈活动，如跑步，踢足球，游泳，滑雪等）

☐**F.** 不知道

5.1.2.2. 自从抵达加拿大以来，下列描述中的哪项最能代表你**一天**的身体活动水平？

☐**A. 很轻**（一天在工作或家中总是坐着，有非常少的走动和做很少一点家务）

☐**B. 轻**（一天在工作或家中经常坐着，有时站立，有少量的走动和做少量的家务）

☐**C. 中度**（一天在工作或家中有时坐着或站立，有时走动，有一到两小时的活动，如操作机器和重设备，园艺，做家务，保龄球，打高尔夫球等）

☐**D. 中重度**（一天在工作或家中经常站立，经常走动，但有中度到剧烈的活动，如徒步旅行，瑜珈，中国太极拳，健身运动等）

☐**E. 重度**（一天在工作或家中总是站立，频繁走动，在工作或闲暇时间有高水平的剧烈活动，如跑步，踢足球，游泳，滑雪等）

☐**F.** 不知道

5.1.3. 身体锻练项目改变：
5.1.3.1. 在抵达加拿大之前，你**每周**进行哪些形式的身体锻练？***请在下列答案选择框中标记所有适合的框或在所提供的空白处写下你的答案。***

☐A. 步行   ☐G. 足球   ☐M. 游泳

☐B. 慢跑或跑步   ☐H. 篮球   ☐N. 瑜珈

☐C. 自行车   ☐I. 曲棍球   ☐O. 中国太极拳或气功

☐D. 徒步旅行   ☐J. 网球   ☐P. 健身运动

□E. 滑雪　　　　□K. 乒乓球　　　□Q. 其它（请注明）：＿＿＿＿＿＿＿

□F. 滑冰　　　　□L. 羽毛球　　　□R. 未锻练

5.1.3.2. 自从抵达加拿大以来，你**每周**进行哪些形式的身体锻练？*请在下列答案选择框中标记所有适合的框或在所提供的空白处写下你的答案。*

□A. 步行　　　　　□G. 足球　　　□M. 游泳

□B. 慢跑或跑步　　□H. 篮球　　　□N. 瑜珈

□C. 自行车　　　　□I. 曲棍球　　□O. 中国太极拳或气功

□D. 徒步旅行　　　□J. 网球　　　□P. 健身运动

□E. 滑雪　　　　　□K. 乒乓球　　□Q. 其它（请注明）：＿＿＿＿＿＿

□F. 滑冰　　　　　□L. 羽毛球　　□R. 未锻练

5.2. 身体锻练理念改变：
5.2.1. 在抵达加拿大之前，下列陈述中的哪项最能描述你每周的身体锻练理念？

□**A.** 上述锻练能**非常强烈地促进**健康

□**B.** 上述锻练能**强烈地促进**健康

□**C.** 上述锻练能**促进**健康

□**D.** 上述锻练能**轻微地促进**健康

□**E.** 上述锻练能**非常轻微地促进**健康

□**F.** 上述锻练**不能促进**健康

□**G.** 不知道

5.2.2. 自从抵达加拿大以来，下列陈述中的哪项最能描述你每周的身体锻练理念？

□**A.** 上述锻练能**非常强烈地促进**健康

□**B.** 上述锻练能**强烈地促进**健康

□**C.** 上述锻练能**促进**健康

□**D.** 上述锻练能**轻微地促进**健康

□**E.** 上述锻练能**非常轻微地促进**健康

□**F.** 上述锻练**不能促进**健康

□**G.** 不知道

第六部分：饮食改变

6.1. 饮食行为改变：

6.1.1. 营养食品消耗改变：

自从抵达加拿大以来，你**每周**的**营养食品**（如：瘦肉，鱼，鸡，海产品，蛋，新鲜水果和蔬菜等）消耗改变了吗？

☐ **A.** 改变 ➡ 请到下面的问题 **6.1.1.1.**和问题 **6.1.1.2.** ⬇

☐ **B.** 未改变

☐ **C.** 不知道

6.1.1.1. 自从抵达加拿大以来，你**每周增加**了哪些**营养食品**的消耗？*请在下列答案选择框中标记所有适合的框或在所提供的空白处写下你的答案。*

☐ **a.** 瘦肉   ☐ **h.** 低脂牛奶   ☐ **o.** 马铃薯

☐ **b.** 鱼   ☐ **i.** 酸奶   ☐ **p.** 红薯

☐ **c.** 鸡   ☐ **j.** 豆腐   ☐ **q.** 新鲜蔬菜

☐ **d.** 海产品   ☐ **k.** 米饭   ☐ **r.** 新鲜水果

☐ **e.** 虾   ☐ **l.** 面食   ☐ **s.** 天然果汁

☐ **f.** 蛋   ☐ **m.** 燕麦片   ☐ **t.** 茶。

☐ **g.** 蜂蜜   ☐ **n.** 玉米   ☐ **u.** 其它（请注明）：_____

6.1.1.2. 自从抵达加拿大以来，你**每周减少**了哪些**营养食品**的消耗？*请在下列答案选择框中标记所有适合的框或在所提供的空白处写下你的答案。*

☐ **a.** 瘦肉   ☐ **h.** 低脂牛奶   ☐ **o.** 马铃薯

☐ **b.** 鱼   ☐ **i.** 酸奶   ☐ **p.** 红薯

☐ **c.** 鸡   ☐ **j.** 豆腐   ☐ **q.** 新鲜蔬菜

☐ **d.** 海产品   ☐ **k.** 米饭   ☐ **r.** 新鲜水果

☐ **e.** 虾   ☐ **l.** 面食   ☐ **s.** 天然果汁

☐ **f.** 蛋   ☐ **m.** 燕麦片   ☐ **t.** 茶

☐ **g.** 蜂蜜   ☐ **n.** 玉米   ☐ **u.** 其它（请注明）：_____

6.1.2. 垃圾和加工食品消耗改变：

自从抵达加拿大以来，你**每周**的**垃圾和加工食品**（如：肥肉，油炸食品，罐头食品，高糖果汁等）消耗改变了吗？

☐**A.** 改变 ➡ 请到下面的问题 6.1.2.1. 和问题 6.1.2.2. ⬇

☐**B.** 未改变

☐**C.** 不知道

6.1.2.1. 自从抵达加拿大以来，你**每周增加**了哪些**垃圾和加工食品**的消耗？*请在下列答案选择框中标记所有适合的框或在所提供的空白处写下你的答案。*

☐**a.** 肥肉 　　　　　　　　☐**h.** 高糖蛋糕和点心

☐**b.** 油炸食品 　　　　　　☐**i.** 糖果和巧克力

☐**c.** 腌制的蔬菜 　　　　　☐**j.** 汽水和可乐

☐**d.** 盐制的肉 　　　　　　☐**k.** 高糖果汁

☐**e.** 香肠和肉干 　　　　　☐**l.** 冰淇淋和冰棒

☐**f.** 炸薯条，饼干，方便面 ☐**m.** 加糖咖啡

☐**g.** 罐头食品 　　　　　　☐**n.** 其它（请注明）：_____

6.1.2.2. 自从抵达加拿大以来，你**每周减少**了哪些**垃圾和加工食品**的消耗？*请在下列答案选择框中标记所有适合的框或在所提供的空白处写下你的答案。*

☐**a.** 肥肉 　　　　　　　　☐**h.** 高糖蛋糕和点心。

☐**b.** 油炸食品 　　　　　　☐**i.** 糖果和巧克力

☐**c.** 腌制的蔬菜 　　　　　☐**j.** 汽水和可乐

☐**d.** 盐制的肉 　　　　　　☐**k.** 高糖果汁

☐**e.** 香肠和肉干 　　　　　☐**l.** 冰淇淋和冰棒

☐**f.** 炸薯条，饼干，方便面 ☐**m.** 加糖咖啡

☐**g.** 罐头食品 　　　　　　☐**n.** 其它（请注明）：_____

6.2. 饮食理念改变：

6.2.1. 在抵达加拿大之前，下列陈述中的哪项最能描述你的**营养食品**理念？

☐**A.** 上述这些营养食品食品能**非常强烈地促进**健康

☐**B.** 上述这些营养食品食品能**强烈地促进**健康

☐**C.** 上述这些营养食品食品能**促进**健康

☐**D.** 上述这些营养食品食品能**轻微地促进**健康

☐**E.** 上述这些营养食品食品能**非常轻微地促进**健康

☐**F.** 上述这些营养食品食品**不能促进**健康

☐**G.** 不知道

6.2.2. 自从抵达加拿大以来，下列陈述中的哪项最能描述你的**营养食品**理念？

☐**A.** 上述这些营养食品食品能**非常强烈地促进**健康

☐**B.** 上述这些营养食品食品能**强烈地促进**健康

☐**C.** 上述这些营养食品食品能**促进**健康

☐**D.** 上述这些营养食品食品能**轻微地促进**健康

☐**E.** 上述这些营养食品食品能**非常轻微地促进**健康

☐**F.** 上述这些营养食品食品**不能促进**健康

☐**G.** 不知道

6.2.3. 在抵达加拿大之前，下列陈述中的哪项最能描述你的**垃圾和加工食品**理念？

☐**A.** 上述这些垃圾和加工食品对健康**有非常强烈的不利影响**

☐**B.** 上述这些垃圾和加工食品对健康**有强烈的不利影响**

☐**C.** 上述这些垃圾和加工食品对健康**有不利影响**

☐**D.** 上述这些垃圾和加工食品对健康**有轻微的不利影响**

☐**E.** 上述这些垃圾和加工食品对健康**有非常轻微的不利影响**

☐**F.** 上述这些垃圾和加工食品对健康**没有不利影响**

☐**G.** 不知道

6.2.4. 自从抵达加拿大以来，下列陈述中的哪项最能描述你的**垃圾和加工食品**理念？

☐**A.** 上述这些垃圾和加工食品对健康**有非常强烈的不利影响**

☐**B.** 上述这些垃圾和加工食品对健康**有强烈的不利影响**

☐**C.** 上述这些垃圾和加工食品对健康**有不利影响**

☐**D.** 上述这些垃圾和加工食品对健康**有轻微的不利影响**

☐**E.** 上述这些垃圾和加工食品对健康**有非常轻微的不利影响**

☐**F.** 上述这些垃圾和加工食品对健康**没有不利影响**

☐**G.** 不知道

第七部分：健康状况改变

7.1. 健康状况改变：

7.1.1. 在抵达加拿大之前，你怎样估计你总体的健康状况？

☐**A.** 极好

☐**B.** 很好

☐**C.** 好

☐**D.** 一般（既不好也不差）

☐**E.** 差

☐**F.** 很差

☐**G.** 极差

☐**H.** 不知道

7.1.2. 自从抵达加拿大以来，你怎样估计你总体的健康状况？

☐**A.** 极好

☐**B.** 很好

☐**C.** 好

☐**D.** 一般（既不好也不差）

☐**E.** 差

☐**F.** 很差

☐**G.** 极差

☐**H.** 不知道

第八部分：人口统计的问题

8.1. 你的母语是哪种语言？

☐ **A.** 英文

☐ **B.** 法文

☐ **C.** 中文

8.2. 你能说什么语言？ *请在下列答案选择框中标记所有适合的框或在所提供的空白处写下你的答案*

☐ **A.** 英文   ☐ **C.** 中文

☐ **B.** 法文   ☐ **D.** 其它（请注明）：＿＿＿＿＿＿＿＿＿＿

8.3. 你原籍哪个国家？＿＿＿＿＿＿＿＿＿＿

8.4. 你在哪个年龄组？

☐ **A.** 18 – 24岁

☐ **B.** 25 – 34岁

☐ **C.** 35 – 44岁

☐ **D.** 45 – 54岁

☐ **E.** 55 – 64岁

☐ **F.** 65 – 74岁

☐ **G.** 75 – 84岁

☐ **H.** 85岁或以上

8.5. 你的性别是什么？

☐ **A.** 男

☐ **B.** 女

8.6. 你目前的婚姻状况是什么？

☐ **A.** 已婚

☐ **B.** 同居

☐ **C.** 离婚

☐ **D.** 寡妇或鳏夫

☐ **E.** 分居

☐ **F.** 单身（从未结婚）

☐ **G.** 不愿告知

8.7. 你的移民签证类别是什么?

☐ **A.** 独立技术移民

☐ **B.** 商业移民

☐ **C.** 家庭团聚移民

☐ **D.** 其它类

8.8. 你已生活在加拿大多久?

☐ **A.** 1年或近1年

☐ **B.** 2 – 5年

☐ **C.** 6 – 10年

☐ **D.** 11 – 20年

☐ **E.** 21年或以上

8.9. 你的最高教育水平是什么?

☐ **A.** 未受教育

☐ **B.** 小学教育

☐ **C.** 中学教育

☐ **D.** 职业培训

☐ **E.** 大专教育

☐ **F.** 大学教育

☐ **G.** 研究生教育

8.10. 你现在的雇用状态是什么?

☐ **A.** 全职就业（每周等于或多于35小时）

☐ **B.** 兼职就业（每周少于35小时）

☐ **C.** 雇主或自雇用

☐ **D.** 退休

☐**E.** 无报酬的工作

☐**E.** 无业

8.11. 你目前的主要职业是什么?

☐**A.** 经理或管理人员

☐**B.** 在政府，法律，科学，工程，教育，卫生，企业，商业，贸易，运输，服务，体育等部门工作的专业技术人员

☐**C.** 工人或农民

☐**D.** 学生

☐**E.** 志愿者

☐**F.** 其它（请注明）：_____

☐**G.** 无职业

8.12. 你现在的宗教是什么?

☐**A.** 佛教

☐**B.** 基督教

☐**C.** 伊斯兰教

☐**D.** 犹太教

☐**E.** 其它（请注明）：_____

☐**F.** 无宗教

8.13. 去年你的个人总收入（税前收入）是多少?

☐**A.** 少于30,000元

☐**B.** 30,000元 – 49,999元

☐**C.** 50,000元 – 69,999元

☐**D.** 70,000元 – 99,999元

☐**E.** 100,000元或以上

☐**F.** 不知道

感谢你花时间来完成本问卷！你的洞察和信息是非常有价值的。

请使用下面的空栏提供如何改进我们工作的补充意见。如果你对本调查有任何进一步的问题和关注，请通过电子邮件（tang0139@flinders.edu.au ）或电话（819-420-1691）或手机（819-708-3099）与唐宁联系。十分感谢你！

健康的饮食！   **健康的生活！**

多元文化的生活方式改變問卷
(小規模試驗)

多元文化的加拿大

1. 介绍

　　感謝你自願參與在加拿大渥太華和加蒂諾市的這項小規模問卷試驗。這是一份英文，法文或中文移民生活方式改變的多元文化問卷。這項問卷試驗將需要大約20-30分鐘完成。請不要把你的名字，聯繫方式寫在任何一頁上；這份問卷是嚴格匿名的：沒有任何回答者能夠被識別。我們非常感謝你能真實地回答這些問題，並也能尊重其他人的隱私。

　　完成這一問卷兩次後，你將獲得20加元。

　　請讀在下一頁首端的回答問卷說明。沒有不正確或錯誤的答案！

　　我們鼓勵你回答所有的問題。你可以隨時尋求主要研究者的幫助。完成這一問卷後，你可以要求獲得最後研究報告的概要。非常感謝你！

2. 聯繫信息

　　唐寧（主要研究者），電子郵箱：tang0139@flinders.edu.au ，電話：819-420-1691，手機：819-708-3099，地址：21-76 rue Richard, Gatineau, Québec J8Y 4Z2, Canada，澳大利亞弗林德斯大學醫學分校公共衛生繫公共衛生學博士生。唐寧的主要導師：澳大利亞弗林德斯大學醫學分校科林·麥克杜格爾副教授（電子郵箱：colin.macdougall@flinders.edu.au）。

3. 遞交信息

　　請將本問卷交回給主要研究者：唐寧。

回答指導：

對每一個問題，用一支黑色鉛筆標記你的答案。**在每題的答案選擇框中只標記一個框，除非在一些問題中的特別回答指導告訴你標記所有適合的框。**

適當的標記：　　　X

第一部分：吸煙改變

1.1. 吸煙行為改變：

1.1.1. 下列哪項最能描述你？

☐**A.** 你從不吸煙

☐**B.** 你在抵達加拿大前吸煙，但抵達後戒煙

☐**C.** 你在抵達加拿大前不吸煙，但抵達後開始吸煙

☐**D.** 如果你在抵達加拿大前和抵達以來都吸煙 ➝ 請到下面的問題 **1.1.1.1.** 和問題 **1.1.1.2.** ⬇

　　　1.1.1.1. 在抵達加拿大前的**最後一年中**，你平均**每天**抽多少支香煙？

　　　☐**a.** 1－10 支（少于一包）

　　　☐**b.** 11 － 20 支（一包）

　　　☐**c.** 21－ 40 支（兩包）

　　　☐**d.** 41支 或 以上（超過兩包）

　　　☐**e.** 不知道

　　　1.1.1.2. **過去的一年中**在加拿大，你平均**每天**抽多少支香煙？

　　　☐**a.** 1－10 支（少于一包）

　　　☐**b.** 11 － 20 支（一包）

　　　☐**c.** 21－ 40 支（兩包）

　　　☐**d.** 41支 或 以上（超過兩包）

　　　☐**e.** 不知道

1.2. 吸煙理念改變：

1.2.1. 在抵達加拿大之前，下列陳述中的哪項最能描述你的吸煙理念？

☐**A.** 吸煙對健康**極其有害**

☐**B.** 吸煙對健康**非常有害**

☐**C.** 吸煙對健康**有害**

☐**D.** 吸煙對健康**輕微有害**

☐**E.** 吸煙對健康**非常輕微有害**

☐**F.** 吸煙對健康**无害**

☐**G.** 不知道

1.2.2. 自從抵達加拿大以來，下列陳述中的哪項最能描述你的吸煙理念？

☐**A.** 吸煙對健康**極其有害**

☐**B.** 吸煙對健康**非常有害**

☐**C.** 吸煙對健康**有害**

☐**D.** 吸煙對健康**輕微有害**

☐**E.** 吸煙對健康**非常輕微有害**

☐**F.** 吸煙對健康**无害**

☐**G.** 不知道

第二部分：飲用酒消耗改變

2.1. 酒精消耗行為改變：

2.1.1. 下列哪項最能描述你？

☐**A.** 你從不飲酒（包括任何含酒精的飲料）

☐**B.** 你在抵達加拿大前飲酒，但抵達後戒酒

☐**C.** 你在抵達加拿大前不飲酒，但抵達後開始飲酒

☐**D.** 如果你在抵達加拿大前和抵達达以來都飲酒 ➞ 請到下面的問題 **2.1.1.1.**和問題**2.1.1.2.** ⬇

　　2.1.1.1. 在抵達加拿大前的**最後一年中**，你平均**每天**飲多少酒(啤酒，白酒)？

　　☐**a.** 少於或等於0.5瓶啤酒，或少於或等於1杯白酒

☐**b.** 1－2瓶啤酒，或2－3杯白酒

☐**c.** 2－3瓶啤酒，或4－6杯白酒

☐**d.**4瓶啤酒或以上，或7－8杯白酒或以上

☐**e.** 不知道

2.1.1.2. **過去的一年中**在加拿大，你平均**每天**飲多少酒(啤酒，白酒)？

☐**a.** 少於或等於0.5瓶啤酒，或少於或等於1杯白酒

☐**b.** 1－2瓶啤酒，或2－3杯白酒

☐**c.** 2－3瓶啤酒，或4－6杯白酒

☐**d.**4瓶啤酒或以上，或7－8杯白酒或以上

☐**e.** 不知道

2.2. 酒精消耗理念改變：

2.2.1. 在抵達加拿大之前，下列陳述中的哪項最能描述你的飲酒理念？

☐**A.** 飲酒對健康**極其有害**

☐**B.** 飲酒對健康**非常有害**

☐**C.** 飲酒對健康**有害**

☐**D.** 飲酒對健康**輕微有害**

☐**E.** 飲酒對健康**非常輕微有害**

☐**F.** 飲酒對健康**无害**

☐**G.** 不知道

2.2.2. 自從抵達加拿大以來，下列陳述中的哪項最能描述你的飲酒理念？

☐**A.** 飲酒對健康**極其有害**

☐**B.** 飲酒對健康**非常有害**

☐**C.** 飲酒對健康**有害**

☐**D.** 飲酒對健康**輕微有害**

☐**E.** 飲酒對健康**非常輕微有害**

☐**F.** 飲酒對健康**无害**

☐**G.** 不知道

第三部分：情緒改變

3.1. 情緒狀態改變：

3.1.1. 在抵達加拿大之前，你怎样描述你總體的情緒狀態？

☐ **A.** 非常輕鬆

☐ **B.** 輕鬆

☐ **C.** 較輕鬆

☐ **D.** 中等（既不輕鬆也不焦慮）

☐ **E.** 較焦慮

☐ **F.** 焦慮

☐ **G.** 非常焦慮

☐ **H.** 不知道

3.1.2. 自從抵達加拿大以來，你怎样描述你總體的情緒狀態？

☐ **A.** 非常輕鬆

☐ **B.** 輕鬆

☐ **C.** 較輕鬆

☐ **D.** 中等（既不輕鬆也不焦慮）

☐ **E.** 較焦慮

☐ **F.** 焦慮

☐ **G.** 非常焦慮

☐ **H.** 不知道

3.2. 情绪理念改變：

3.2.1. 在抵達加拿大之前，下列陳述中的哪項最能描述你的焦慮理念？

☐ **A.** 焦慮對健康**有極其強烈的負面影響**

☐ **B.** 焦慮對健康**有強烈的負面影響**

☐ **C.** 焦慮對健康**有負面影響**

☐ **D.** 焦慮對健康**有輕微的負面影響**

☐**E.** 焦慮對健康**有非常輕微的負面影響**

☐**F.** 焦慮對健康**沒有負面影響**

☐**G.** 不知道

3.2.2. 在抵達加拿大之後，下列陳述中的哪項最能描述你的緊張和焦慮理念？

☐**A.** 焦慮對健康**有極其強烈的負面影響**

☐**B.** 焦慮對健康**有強烈的負面影響**

☐**C.** 焦慮對健康**有負面影響**

☐**D.** 焦慮對健康**有輕微的負面影響**

☐**E.** 焦慮對健康**有非常輕微的負面影響**

☐**F.** 焦慮對健康**沒有負面影響**

☐**G.** 不知道

第四部分：睡眠改變

4.1. 睡眠行為改變：

4.1.1. 睡眠時間改變：

4.1.1.1. 在抵達加拿大之前，你平均**每天**睡多少小時？

☐**A.** 少於6或等于6小時

☐**B.** 7 – 8小時

☐**C.** 9小時

☐**D.** 10小時或以上。

☐**E.** 不知道

4.1.1.2. 自從抵達加拿大以來，你平均**每天**睡多少小時？

☐**A.** 少於6或等于6小時

☐**B.** 7 – 8小時

☐**C.** 9小時

☐**D.** 10小時或以上。

☐**E.** 不知道

4.1.2. 睡眠質量改變：

4.1.2.1. 在抵達加拿大之前，你**每天**的睡眠质量怎样？

☐**A.** 極好

☐**B.** 很好

☐**C.** 好。

☐**D.** 一般（既不好也不差）

☐**E.** 差

☐**F.** 很差

☐**G.** 極差

☐**H.** 不知道

4.1.2.2. 自從抵達加拿大以来，你**每天**的睡眠质量怎样？

☐**A.** 極好

☐**B.** 很好

☐**C.** 好

☐**D.** 一般（既不好也不差）

☐**E.** 差

☐**F.** 很差

☐**G.** 極差

☐**H.** 不知道

4.2. **睡眠理念改變：**

4.2.1. 在抵達加拿大之前，下列陳述中的哪項最能描述你的睡眠理念？

☐**A.** 每天至少7-8個小時高質量的睡眠**極其有助於**健康

☐**B.** 每天至少 7-8 個小時高質量的睡眠**非常有助於**健康

☐**C.** 每天至少 7-8 個小時高質量的睡眠**有助於**健康

☐**D.** 每天至少 7-8 個小時高質量的睡眠**輕微有助於**健康

☐**E.** 每天至少 7-8 個小時高質量的睡眠**非常輕微有助於**健康

☐**F.** 每天至少 7-8 個小時高質量的睡眠**不助於**健康

☐**G.** 不知道

4.2.2. 自從抵達加拿大之後，下列陳述中的哪項最能描述你的睡眠理念？

☐**A.** 每天至少7-8個小時高質量的睡眠**極其有助於**健康

☐**B.** 每天至少 7-8 個小時高質量的睡眠**非常有助於**健康

☐**C.** 每天至少 7-8 個小時高質量的睡眠**有助於**健康

☐**D.** 每天至少 7-8 個小時高質量的睡眠**輕微有助於**健康

☐**E.** 每天至少 7-8 個小時高質量的睡眠**非常輕微有助於**健康

☐**F.** 每天至少 7-8 個小時高質量的睡眠**不助於**健康

☐**G.** 不知道

第五部分：身體活動改變

5.1. 身體活動行為改變：
5.1.1. 身體鍛練時間改变：
5.1.1.1. 在抵達加拿大之前，你平均**每週**進行多长時間的身體鍛練？

☐**A.** 少於1小時

☐**B.** 1 – 2時

☐**C.** 3 – 4小時

☐**D.** 5 – 6小時

☐**E.** 6小時以上

☐**F.** 不知道

5.1.1.2. 自从抵達加拿大以來，你平均**每週**進行多长時間的身體鍛練？

☐**A.** 少於1小時

☐**B.** 1 – 2時

☐**C.** 3 – 4小時

☐**D.** 5 – 6小時

☐**E.** 6小時以上

☐**F.** 不知道

5.1.2. 身體活動水平改變：

5.1.2.1. 在抵達加拿大之前，下列描述中的哪項最能代表你一天的身體活動水平？

☐ **A. 很輕**（一天在工作或家中總是坐著，有非常少的走動和做很少一點家務）。

☐ **B. 輕**（一天在工作或家中經常坐著，有時站立，有少量的走動和做少量的家務）

☐ **C. 中度**（一天在工作或家中有時坐著或站立，有時走動，有一到兩小時的活動， 如操作機器和重設備，園藝，做家務，保齡球，打高爾夫球等）

☐ **D. 中重度**（一天在工作或家中經常站立，經常走動，但有中度到劇烈的活動，如徒步旅行，瑜珈，中國太極拳或氣功，健身運動等）

☐ **E. 重度**（一天在工作或家中總是站立，頻繁走動，在工作或閒暇時間有高水平的劇烈活動，如跑步，踢足球，游泳，滑雪等）

☐ **F.** 不知道

5.1.2.2. 自从抵達加拿大以來，下列描述中的哪項最能代表你一天的身體活動水平？

☐ **A. 很輕**（一天在工作或家中總是坐著，有非常少的走動和做很少一點家務）

☐ **B. 輕**（一天在工作或家中經常坐著，有時站立，有少量的走動和做少量的家務）

☐ **C. 中度**（一天在工作或家中有時坐著或站立，有時走動，有一到兩小時的活動， 如操作機器和重設備，園藝，做家務，保齡球，打高爾夫球等）

☐ **D. 中重度**（一天在工作或家中經常站立，經常走動，但有中度到劇烈的活動，如徒步旅行，瑜珈，中國太極拳或氣功，健身運動等）

☐ **E. 重度**（一天在工作或家中總是站立，頻繁走動，在工作或閒暇時間有高水平的劇烈活動，如跑步，踢足球，游泳，滑雪等）

☐ **F.** 不知道

5.1.3. 身體鍛練項目改變：
5.1.3.1. 在抵達加拿大之前，你**每週**進行哪些形式的身體鍛練？ *請在下列**答案選擇框**中標記所有適合的框或在所提供的空白處寫下你的答案。*

☐ A. 步行   ☐ F. 足球   ☐ M. 游泳

☐ B. 慢跑或跑步   ☐ G. 籃球   ☐ N. 瑜珈

☐ C. 自行车   ☐ H. 曲棍球   ☐ O. 中國太極拳或氣功

☐ D. 徒步旅行　　☐ I. 網球　　☐ P. 健身运动

☐ E. 滑雪　　　　☐ K. 乒乓球　☐ Q. 其它（請註明）：＿＿＿＿＿

☐ E. 滑冰　　　　☐ L. 羽毛球　☐ R. 未鍛練。

5.1.3.2. 自從抵達加拿大以來，你**每週**進行哪些形式的身體鍛練？ *請在下列**答案選擇框中標記**所有適合的框或在所提供的空白處寫下你的答案。*

☐ A. 步行　　　　☐ F. 足球　　☐ M. 游泳

☐ B. 慢跑或跑步　☐ G. 籃球　　☐ N. 瑜珈

☐ C. 自行车　　　☐ H. 曲棍球　☐ O. 中國太極拳或氣功

☐ D. 徒步旅行　　☐ I. 網球　　☐ P. 健身运动

☐ E. 滑雪　　　　☐ K. 乒乓球　☐ Q. 其它（請註明）：＿＿＿＿＿

☐ E. 滑冰　　　　☐ L. 羽毛球　☐ R. 未鍛練。

5.2. 身體鍛練理念改變：
5.2.1. 在抵達加拿大之前，下列陳述中的哪項最能描述你每週的身體鍛練理念？

☐ **A.** 上述鍛練能**非常強烈地促進**健康

☐ **B.** 上述鍛練能**強烈地促進**健康

☐ **C.** 上述鍛練能**促進**健康

☐ **D.** 上述鍛練能**輕微地促進**健康

☐ **E.** 上述鍛練能**非常輕微地促進**健康

☐ **F.** 上述鍛練**不能促進**健康

☐ **G.** 不知道

5.2.2. 自從抵達加拿大以來，下列陳述中的哪項最能描述你每週的身體鍛練理念？

☐ **A.** 上述鍛練能**非常強烈地促進**健康

☐ **B.** 上述鍛練能**強烈地促進**健康

☐ **C.** 上述鍛練能**促進**健康

☐ **D.** 上述鍛練能**輕微地促進**健康

☐ **E.** 上述鍛練能**非常輕微地促進**健康

☐ **F.** 上述鍛練**不能促進**健康

□**G.** 不知道

第六部分：飲食改變

6.1. 飲食行為改變：

6.1.1. **營養食品**消耗改變：

自從抵達加拿大以來，你**每週**的**營養食品**（如：瘦肉，魚，雞，海產品，蛋，新鮮水果和蔬菜等）消耗改變了嗎？

□**A.** 改變 → 请到下面的問題 **6.1.1.1.**和問題 **6.1.1.2.** ↓

□**B.** 未改變

□**C.** 不知道

6.1.1.1. 自從抵達加拿大以來，你**每週增加**了哪些**營養食品**的消耗？*請在下列答案選擇框中標記所有適合的框或在所提供的空白處寫下你的答案。*

□**a.** 瘦肉	□**h.** 低脂牛奶	□**o.** 馬鈴薯
□**b.** 鱼	□**i.** 酸奶	□**p.** 紅薯
□**c.** 雞	□**j.** 豆腐	□**q.** 新鮮水果
□**d.** 海產品	□**k.** 米飯	□**r.** 新鮮蔬菜
□**e.** 蝦	□**l.** 麵食	□**s.** 天然果汁
□**f.** 蛋	□**m.** 燕麥片	□**t.** 茶
□**g.** 蜂蜜	□**n.** 玉米	□**u.** 其它（請註明）：＿＿＿＿

6.1.1.2. 自從抵達加拿大以來，你**每週減少**了哪些**營養食品**的消耗？*請在下列答案選擇框中標記所有適合的框或在所提供的空白處寫下你的答案。*

□**a.** 瘦肉	□**h.** 低脂牛奶	□**o.** 馬鈴薯
□**b.** 鱼	□**i.** 酸奶	□**p.** 紅薯
□**c.** 雞	□**j.** 豆腐	□**q.** 新鮮水果
□**d.** 海產品	□**k.** 米飯	□**r.** 新鮮蔬菜
□**e.** 蝦	□**l.** 麵食	□**s.** 天然果汁
□**f.** 蛋	□**m.** 燕麥片	□**t.** 茶

☐**g.** 蜂蜜　　　　☐**n.** 玉米　　　　☐**u.** 其它（請註明）：＿＿＿＿

6.1.2. 垃圾和加工食品消耗改變：
自從抵達加拿大以來，你**每週**的**垃圾和加工食品**（如：肥肉，油炸食品，罐頭食品，高糖果汁等）消耗改變了嗎？

☐**A.** 改變 ➜ 请到下面的問題 **6.1.2.1.** 和問題 **6.1.2.2.** ⬇

☐**B.** 未改變

☐**C.** 不知道

6.1.2.1. 自從抵達加拿大以來，你**每週增加**了哪些**垃圾和加工食品**的消耗？*請在下列答案選擇框中標記所有適合的框或在所提供的空白處寫下你的答案。*

☐**a.** 肥肉　　　　　　　　☐**h.** 高糖蛋糕和點心

☐**b.** 油炸食品　　　　　　☐**i.** 糖果和巧克力

☐**c.** 醃製的蔬菜　　　　　☐**j.** 汽水和可樂

☐**d.** 鹽製的肉　　　　　　☐**k.** 高糖果汁

☐**e.** 香腸和肉乾　　　　　☐**l.** 冰淇淋和冰棒

☐**f.** 炸薯條，餅乾，方便麵　☐**m.** 加糖咖啡

☐**g.** 罐頭食品　　　　　　☐**n.** 其它（請註明）：＿＿＿＿＿

6.1.2.2. 自從抵達加拿大以來，你**每週減少**了哪些**垃圾和加工食品**的消耗？*請在下列答案選擇框中標記所有適合的框或在所提供的空白處寫下你的答案。*

☐**a.** 肥肉　　　　　　　　☐**h.** 高糖蛋糕和點心

☐**b.** 油炸食品　　　　　　☐**i.** 糖果和巧克力

☐**c.** 醃製的蔬菜　　　　　☐**j.** 汽水和可樂

☐**d.** 鹽製的肉　　　　　　☐**k.** 高糖果汁

☐**e.** 香腸和肉乾　　　　　☐**l.** 冰淇淋和冰棒

☐**f.** 炸薯條，餅乾，方便麵　☐**m.** 加糖咖啡

☐**g.** 罐頭食品　　　　　　☐**n.** 其它（請註明）：＿＿＿＿＿

6.2. 飲食理念改變：
6.2.1. 在抵達加拿大之前，下列陳述中的哪項最能描述你的**營養食品**理念？

☐**A.** 上述這些營養食品能**非常强烈地促進**健康

☐**B.** 上述這些營養食品能**强烈地促進**健康

☐**C.** 上述這些營養食品能**促進**健康

☐**D.** 上述這些營養食品能**轻微地促進**健康

☐**E.** 上述這些營養食品能**非常轻微地促進**健康

☐**F.** 上述這些營養食品**不能促進**健康

☐**G.** 不知道

6.2.2. 自從抵達加拿大以來，下列陳述中的哪項最能描述你的**營養食品**理念？

☐**A.** 上述這些營養食品能**非常强烈地促進**健康

☐**B.** 上述這些營養食品能**强烈地促進**健康

☐**C.** 上述這些營養食品能**促進**健康

☐**D.** 上述這些營養食品能**轻微地促進**健康

☐**E.** 上述這些營養食品能**非常轻微地促進**健康

☐**F.** 上述這些營養食品**不能促進**健康

☐**G.** 不知道

6.2.3. 在抵達加拿大之前，下列陳述中的哪項最能描述你的**垃圾和加工食品**理念？

☐**A.** 上述這些垃圾和加工食品對健康**有非常强烈的不利影響**

☐**B.** 上述這些垃圾和加工食品對健康**有强烈的不利影響**

☐**C.** 上述這些垃圾和加工食品對健康**有不利影響**

☐**D.** 上述這些垃圾和加工食品對健康**有轻微的不利影響**

☐**E.** 上述這些垃圾和加工食品對健康**有非常轻微的不利影響**

☐**F.** 上述這些垃圾和加工食品對健康**沒有不利影響**

☐**G.** 不知道

6.2.4. 自從抵達加拿大以來，下列陳述中的哪項最能描述你的**副食品**理念？

☐**A.** 上述這些垃圾和加工食品對健康**有非常强烈的不利影響**

☐**B.** 上述這些垃圾和加工食品對健康**有强烈的不利影響**

☐**C.** 上述這些垃圾和加工食品對健康**有不利影響**

☐**D.** 上述這些垃圾和加工食品對健康**有轻微的不利影響**

☐**E.** 上述這些垃圾和加工食品對健康**有非常轻微的不利影響**

☐**F.** 上述這些垃圾和加工食品對健康**沒有不利影響**

☐**G.** 不知道

第七部分：健康狀況改變

7.1. 健康狀況改變：

7.1.1. 在抵達加拿大之前，你怎樣估計你總體的健康狀況？

☐**A.** 極好

☐**B.** 很好

☐**C.** 好

☐**D.** 一般（既不好也不差）

☐**E.** 差

☐**F.** 很差

☐**G.** 極差

☐**H.** 不知道

7.1.2. 自從抵達加拿大以來，你怎样估計你總體的健康狀況？

☐**A.** 極好

☐**B.** 很好

☐**C.** 好

☐**D.** 一般（既不好也不差）

☐**E.** 差

☐**F.** 很差

☐**G.** 極差

☐**H.** 不知道

第八部分：人口統計的問題

8.1. 你的母語是哪種語言?

☐**A.** 英文

☐**B.** 法文

☐**C.** 中文

8.3. 你能說什麼語言? *請在下列答案選擇框中標記所有適合的框或在所提供的空白處寫下你的答案。*

☐**A.** 英文　　　　　　　　☐**C.** 中文。

☐**B.** 法文　　　　　　　　☐**D.** 其它（請註明）：＿＿＿＿＿＿＿＿＿

8.2. 你原籍哪個國家？＿＿＿＿＿＿＿＿＿

8.3. 你在哪個年齡組?

☐**A.** 18 – 24岁

☐**B.** 25 – 34岁

☐**C.** 35 – 44岁

☐**D.** 45 – 54岁

☐**E.** 55 – 64岁

☐**F.** 65 – 74岁

☐**G.** 75 – 84岁

☐**H.** 85岁或以上

8.4. 你的性別是什麼?

☐**A.** 男

☐**B.** 女

8.5. 你目前的婚姻狀況是什麼?

☐**A.** 已婚

☐**B.** 同居

☐**C.** 離婚

☐**D.** 寡婦或鰥夫

☐**E.** 分居

☐**F.** 單身（從未結婚）

☐**G.** 不願告知

8.6. 你的移民簽證類別是什麼?

☐**A.** 獨立技術移民

☐**B.** 商業移民

☐**C.** 家庭團聚移民

☐**D.** 其它類

8.7. 你已生活在加拿大多久?

☐**A.** 1年或近1年

☐**B.** 2 – 5年

☐**C.** 6 – 10年

☐**D.** 11 – 20年

☐**E.** 21年或以上

8.8. 你的最高教育水平是什麼?

☐**A.** 未受教育

☐**B.** 小學教育

☐**C.** 中學教育

☐**D.** 職業培训

☐**E.** 大專教育

☐**F.** 大學教育

☐**G.** 研究生教育

8.9. 你現在的僱用狀態是什麼?

☐**A.** 全職就業（每週等於或多於35小時）

☐**B.** 兼職就業（每週少於35小時）

☐**C.** 雇主或自僱用

☐**D.** 退休

☐ **E.** 無報酬的工作

☐ **F.** 無業

8.11. 你目前的主要職業是什麼?

☐ **A.** 經理或管理人員

☐ **B.** 在政府，法律，科學，工程，教育，衛生，企業，商業，貿易，运输，運輸，服務，體育等門工作的專業技術人員

☐ **C.** 工人或農民

☐ **D.** 學生

☐ **E.** 志願者

☐ **F.** 其它（請註明）：＿＿＿＿＿＿＿＿＿＿

☐ **G.** 無職業

8.10. 你现在的宗教是什麼?

☐ **A.** 佛教

☐ **B.** 基督教

☐ **C.** 伊斯蘭教

☐ **D.** 犹太教

☐ **E.** 其它（請註明）：＿＿＿＿＿＿＿＿＿＿

☐ **F.** 無宗教

8.11. 去年你的個人總收入（稅前收入）是多少?

☐ **A.** 少於30,000元

☐ **B.** 30,000元 － 59,999元

☐ **C.** 50,000元 － 69,999元

☐ **D.** 70,000元 － 99,999元

☐ **E.** 100,000元或以上

☐ **F.** 不知道

感謝你花時間來完成本問卷！你的洞察和信息是非常有價值的。

　請使用下面的空欄提供如何改進我們工作的補充意見。如果你對本調查有任何進一步的問題和關注，請通過電子郵件（tang0139@flinders.edu.au ）或電話（819-420-1691）或手機（819-708-3099）與唐寧聯繫。十分感謝你！

健康的飲食！

Grain Products	Vegetables & Fruit	Milk Products	Meat & Alternatives
穀物類食品	蔬菜和水果	奶類食品	肉類和肉產品

健康的生活！

A (English/Anglais/英文)

English, French or Chinese Immigrants Wanted
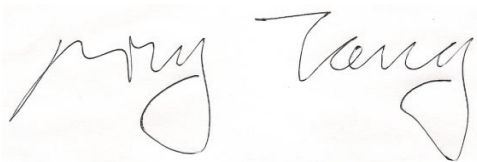
-- Questionnaire Pilot-Testing

As part of a university research, a Multicultural Questionnaire to examine lifestyle changes of English, French or Chinese speaking immigrants is tested. The questionnaire pilot-testing focuses only on immigrants living in Ottawa or Gatineau one year or more. The immigrants must be 18 years or more. These persons were 16 years or more when they arrived in Canada. Each participant will receive $20 after responding a questionnaire twice.

If you are interested in participating in the pilot-testing, please contact the main researcher: Ning Tang. E-mail: tang0139@flinders.edu.au. Telephone: 819-420-1691. Mobile phone: 819-708-3099. Address: 21-76 rue Richard, Gatineau, Québec J8Y 4Z2, Canada.

Thank you.

The principal researcher:

Ning Tang, DrPH (Doctor of Public Health) Student
Department of Public Health, School of Medicine,
Faculty of Health Sciences, Flinders University, Australia

B (Français/French/法文)

Besoin d'imminrants anglophones, francophones ou sinophones

-- Le test-pilote de questionnaire

Dans le cadre d'une recherche universitaire, un questionnaire multiculturel qui étudie les changements de mode de vie chez des immigrants anglophones, francophones ou sinophones est testé. Le test-pilote de questionnaire porte seulement sur des immigrants qui résident à Ottawa ou Gatineau depuis une année ou plus. Les immigrants doivent avoir 18 ans ou plus. Ces personnes ont été 16 ans ou plus quand elles sont arrivées au Canada. Chaque participant recevra 20 $ après avoir répondu deux fois à un questionnaire.

Si vous êtes intéressés à participer au test-pilote, veuillez communiquer avec le chercheur principal, Ning Tang. Le courriel: tang0139@flinders.edu.au. Le téléphone: 819-420-1691. Le téléphone mobile: 819-708-3099. L'adresse: 21-76 rue Richard, Gatineau, Québec J8Y 4Z2, Canada.

Merci.

Le chercheur principal:

Ning Tang, Étudiant de DrSP (doctorat en santé publique)
Département de santé publique, École de médecine
Faculté de sciences de santé, Université Flinders, Australie

需要英文，法文或中文移民

--- 问卷的小规模试验
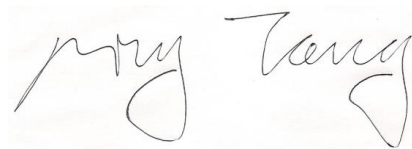
作为一项大学研究的一部分，一份多元文化的用于捡验英文，法文或中文移民生活方式改变的问卷被试验。这一问卷的小规模试验只对居住在渥太华或加蒂诺市一年或一年以上的移民。这些移民必须年满 18 岁或以上。当这些人抵达加拿大时，他们已满 16 岁或以上。每个参与者在回答问卷两次后将获得 20 加元。

如果你对参与该项试验感兴趣，请与主要研究者唐宁联系。电子邮箱：tang0139@flinders.edu.au。电话：819-420-1691。手机：819-708-3099。地址：21-76 rue Richard, Gatineau, Québec J8Y 4Z2, Canada。

致谢！

主要研究者：

公共卫生学博士生: 唐宁

澳大利亚弗林德斯大学卫生科学院医学分校公共卫生系

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需要英文，法文或中文移民
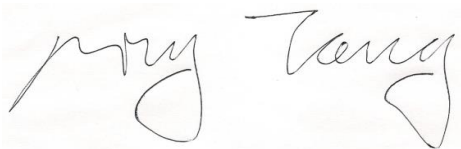
--- 問卷的小規模試驗

作為一項大學調查的一部分，一份多元文化的用於撿驗英文，法文或中文移民生活方式改變的問卷被試驗。這一問卷的小規模試驗只對居住在渥太華或加蒂諾市一年或一年以上的移民。這些移民必須年滿 18 歲或以上。當這些人抵達加拿大時，他們已滿 16 歲或以上。每個參與者在回答問卷兩次後將獲得 20 加元。

如果你對參與該項試驗感興趣，請與主要研究者唐寧聯繫。電子郵箱：tang0139@flinders.edu.au。電話：819-420-1691。手機：819-708-3099。地址：21-76 rue Richard，Gatineau，Québec J8Y 4Z2，Canada。

致謝！

主要研究者：
公共衛生學博士生: 唐寧

澳大利亞弗林德斯大學衛生科學院醫學分校公共衛生繫

A (English/Anglais/英文)

INFORMATION SHEET
‒‒ Questionnaire Pilot-Testing

The survey involves pilot-testing a multicultural questionnaire that examines lifestyle changes of English, French or Chinese speaking immigrants.

Participants should be immigrants who have lived in Ottawa or Gatineau one year or more, and have 18 years or more. These persons were 16 years or more when they arrived in Canada.

You will be asked to complete the pilot-testing questionnaire twice, 2 weeks apart.

You can choose an English, a French or a Chinese questionnaire to answer the questions. However, I recommend that the choice of questionnaire be related to your maternal language.

The research is being monitored by principal supervisor of the project, A/Professor Colin MacDougall (http://www.flinders.edu.au/people/colin.macdougall , E-mail: colin.macdougall@flinders.edu.au) in School of Medicine, Flinders University, Australia.

If you are displeasingly affected by the investigation, you may contact the Community Health Centres in Ottawa or Gatineau: Sandy Hill Community Health Centre (221 Nelson Street, Ottawa, ON K1N1C7, telephone: 613-789-7752, www.sandyhillchc.on.ca); Centre Town Community Health Centre (420 rue Cooper Street, Ottawa, ON K2P 2N6, telephone: 613-233-4443, www.centretownchc.org); Services A Domicile De L'Outaouais (492, boulevard De l'Hôpital, Gatineau, QC J8V 2P4, telephone: 819-561-0911, http://www.servicesdo.ca/), Services De Santé Marleen Tassé (1171, boulevard Saint-Joseph, Gatineau, QC J8Z 2C3, telephone: 819-595-0790, http://www.marleentasse.com/).

If you have any inquires related to the investigation or the questionnaire, you may contact the principal researcher: Ning Tang (E-mail: tang0139@flinders.edu.au; telephone: 819-420-1691; mobile phone: 819-708-3099; address: 21-76 rue Richard, Gatineau, Québec J8Y 4Z2, Canada).

Any personal details obtained for purpose of the investigation will be erased at the end of the research and only the principal researcher administering the questionnaires and his supervisors will have access to these details at any stage of the investigation.
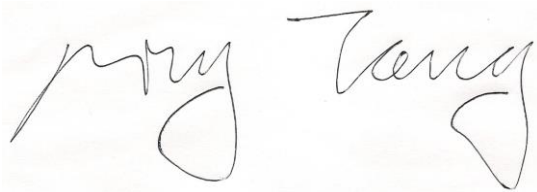
Your participation is volunteering. You can withdraw from the investigation at any stage and draw back your questionnaire.

You will receive $20 after responding the questionnaire twice.

You may ask for a summary of the results after completing the questionnaire. Any publication from this research will not reveal any participant details. The publications will include a higher degree dissertation and other academic journal papers.

Thank you very much for your participation.

The principal researcher:

Ning Tang DrPH (Doctor of Public Health) Student
Department of Public Health, School of Medicine,
Faculty of Health Sciences, Flinders University, Australia

FICHE D'INFORMATION
-- **Le test-pilote de questionnaire**

Dans cette enquête, nous testerons un questionnaire multiculturel qui examine les changements de mode de vie des immigrants anglophones, francophones ou sinophones.

Les participants doivent être des immigrants qui ont vécu à Ottawa ou Gatineau depuis une année ou plus, et avoir 18 ans et plus. Ces personnes ont été 16 ans ou plus quand elles sont arrivées au Canada.

On vous demande de remplir le questionnaire du test-pilote à deux reprises, à deux semaines d'intervalle.

Vous pouvez choisir un questionnaire anglais, français ou chinois. Toutefois, je recommande de choisir que le questionnaire était dans votre langue maternelle.

La recherche est surveillée par le directeur principal du projet, l'A/Professeur Colin MacDougall (http://www.flinders.edu.au/people/colin.macdougall , le courriel: colin.macdougall@flinders.edu.au) à l'École de Médecine de l'Université Flinders en Australie.

Si vous êtes souffert le déplaisir de l'enquête, vous pouvez contacter le centre de santé communautaire à Ottawa ou Gatineau: Sandy Hill Community Health Centre (221 Nelson Street, Ottawa, ON K1N1C7, téléphone: 613-789-7752, www.sandyhillchc.on.ca); Centre Town Community Health Centre (420 rue Cooper Street, Ottawa, ON K2P 2N6, telephone: 613-233-4443, www.centretownchc.org); Services A Domicile De L'Outaouais (492, boulevard De l'Hôpital, Gatineau, QC J8V 2P4, téléphone: 819-561-0911, http://www.servicesdo.ca/), Services De Santé Marleen

Tassé (1171, boulevard Saint-Joseph, Gatineau, QC J8Z 2C3, téléphone: 819-595-0790, http://www.marleentasse.com/).

Si vous avez des demandes de renseignements liées à l'enquête ou au questionnaire, vous pouvez communiquer avec le chercheur principal, Ning Tang (le courriel: tang0139@flinders.edu.au; le téléphone: 819-420-1691; Le téléphone mobile: 819-708-3099; l'adresse: 21-76 rue Richard, Gatineau, Québec J8Y 4Z2, Canada).

Les données personnelles obtenues durant l'enquête seront effacées à la fin de la recherche et seulement le chercheur principal administrant les questionnaires et ses directeurs de thèse auront accès à ces informations à n'importe quel stade de l'enquête.
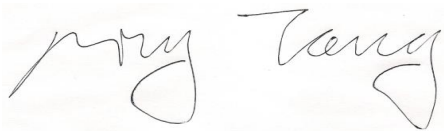
Votre participation est volontaire. Vous pouvez vous retirer de l'enquête à tout moment et reprendre votre questionnaire.

Vous recevrez 20 $ après avoir répondu deux fois au questionnaire.

Vous pourrez demander un résumé des résultats après avoir complété le questionnaire. Le publication de cette recherche ne révèlera aucun détail sur les participants. Les publications comprendront une thèse de doctorat et d'autres articles dans des revues académiques.

Merci beaucoup de votre participation.

Le chercheur principal:

Ning Tang, Étudiant de DrSP (doctorat en santé publique)
Département de santé publique, École de médecine,
Faculté de sciences de santé, Université Flinders, Australie

C（简化中文/Simplified Chinese/Chinois Simplié）

信息单

--- 问卷的小规模试验

这一调查包括小规模地试验一份捡验英文，法文或中文移民生活方式改变的多元文化问卷。

参加者应该是居住在加拿大渥太华或加蒂诺市一年或一年以上的移民，并年满 18 岁或以上。当这些人抵达加拿大时，他们已满 16 岁或以上。

你将回答这一小规模试验问卷两次，中间间隔两周。

你可以选择英文，法文或中文问卷回答问题。不过，我建议你选择你母语的问卷。

这项研究由该项目的主要负责人澳大利亚弗林德斯大学医学院科林·麦克杜格尔副教授（http://www.flinders.edu.au/people/colin.macdougall ，电子邮箱：colin.macdougall@flinders.edu.au)监管。

如果你受到这项调查的不良影响，你可以与在渥太华或加蒂诺的社区卫生中心联系：Sandy Hill Community Health Centre (221 Nelson Street, Ottawa, ON K1N1C7, telephone: 613-789-7752, www.sandyhillchc.on.ca)；Centre Town Community Health Centre (420 rue Cooper Street, Ottawa, ON K2P 2N6, telephone: 613-233-4443, www.centretownchc.org)；Services A Domicile De

L'Outaouais (492, boulevard De l'Hôpital, Gatineau, QC J8V 2P4, telephone: 819-561-0911, http://www.servicesdo.ca/), Services De Santé Marleen Tassé (1171, boulevard Saint-Joseph, Gatineau, QC J8Z 2C3, telephone: 819-595-0790, http://www.marleentasse.com/).

如果你对这项调查或这一问卷有任何疑问，你可以与主要研究者唐宁联系（电子邮箱：tang0139@flinders.edu.au；电话：819-420-1691；手机：819-708-3099；地址：21-76 rue Richard, Gatineau, Québec J8Y 4Z2, Canada）。

为调查目的所取得任何个人资料在研究结束后都将被抹去。只有管理这一问卷的主要研究者和他的导师们能在调查的任何阶段接近这些资料。

你的参与是志愿的。你可以在调查的任何阶段退出并收回你的问卷。

完成问卷两次后你将得到 20 加元。

完成这一问卷后，你可以要求获得研究结果的概要。任何出版物不会揭示任何参与者的祥情。这些出版物将包括一篇高学位的论文和其它学术期刊文章。

非常感谢你的参与！

主要研究者：

公共卫生学博士生　唐宁

澳大利亚弗林德斯大学卫生科学院医学分校公共卫生系

D（传统中文/Traditional Chinese/Chinois Traditionnel）

信息單

--- 問卷的小規模試驗

這一調查包括小規模地試驗一個撿驗英文，法文或中文移民的生活方式改變的多元文化問卷。

參加者應該是居住在加拿大渥太華或加蒂諾市一年或一年以上的移民，並年滿 18 歲或以上。當這些人抵達加拿大時，他們已滿 16 歲或以上。

你將回答這一小規模試驗問卷兩次，中間間隔兩週。

你可以選擇英文，法文或中文問卷回答問題。不過，我建議你選擇你母語的問卷。

這項研究由該項目的主要負责人澳大利亞弗林德斯大學醫學院科林·麥克杜格爾副教授（http://www.flinders.edu.au/people/colin.macdougall ，電子郵箱：colin.macdougall@flinders.edu.au）監管。

如果你受到這項調查或研究不利的影響，你可以與在渥太華或加蒂諾的社區衛生中心聯繫：Sandy Hill Community Health Centre (221 Nelson Street, Ottawa, ON K1N1C7, telephone: 613-789-7752, www.sandyhillchc.on.ca); Centre Town Community Health Centre (420 rue Cooper Street, Ottawa, ON K2P 2N6, telephone: 613-233-4443, www.centretownchc.org); Services A

Domicile De L'Outaouais (492 , boulevard De l'Hôpital, Gatineau, QC J8V 2P4, telephone: 819-561-0911, http://www.servicesdo.ca/), Services De Santé Marleen Tassé (1171, boulevard Saint-Joseph, Gatineau, QC J8Z 2C3, telephone: 819-595-0790, http://www.marleentasse.com/).

　　如果你對這項調查或這一問卷有任何疑問，你可以與主要研究者唐寧聯繫（電子郵箱：tang0139@flinders.edu.au；電話：819-420-1691；手機：819-708-3099；地址：21-76 rue Richard, Gatineau, Québec J8Y 4Z2, Canada）。

　　為調查目的所取得任何個人資料在研究結束後都將被抹去。只有管理這一問卷的主要研究者和他的導師們能在調查的任何階段接近這些資料。

　　你的參與是志願的。你可以在調查的任何階段退出並收回你的問卷。

　　完成問卷兩次後你將得到 20 加元。

　　完成這一問卷後，你可以獲得研究結果的概要。任何出版物不會揭示任何參與者的祥情。這些出版物將包括一篇高學位的論文和其它學術刊文章。

非常感谢你的參與！

主要研究者：

公共衛生學博士生　唐寧

澳大利亞弗林德斯大學衛生科學院醫學分校公共衛生繫

A (English/Anglais/英文)

LETTER OF INTRODUCTION

-- Questionnaire Pilot-Testing

Dear Sir/Madame,

   This letter is to introduce Mr. Ning Tang, a Higher Degree student (Doctor of Public Health) in Discipline of Public Health, School of Medicine, Flinders University, Australia.

   As part of his university studies, he is undertaking research leading to the production (Developing and Testing a Multicultural Questionnaire Examining Lifestyle Changes of English, French or Chinese Speaking Immigrants in Ottawa and Gatineau, Canada) for his doctoral dissertation. This research is being supervised by A/Professor Colin MacDougall in School of Medicine. Colin MacDougall is his principal supervisor.

   He would be most grateful if you would volunteer to assist in this research. You will be encouraged to answer questions in the multicultural lifestyle change questionnaire twice, 2 weeks apart. The instructions are included with the questionnaire. The questionnaire will be able to take approximately 20-30 minutes to complete. Your participation will be voluntary and you have the right to withdraw at any stage.

   Any information provided will be treated in the strictest confidence and none of the participants will be individually identifiable in the resulting report or other publications.

   Any enquiries you may have concerning this research may be directed to me at the address given: A/Professor Colin MacDougall (E-mail:

colin.macdougall@flinders.edu.au; http://www.flinders.edu.au/people/colin.macdougall; telephone: +61 08 7221 8412).

If you have any concerns or complaints about the conduct of this research, you can contact his principal supervisor (see contact information above) or Flinders University Social and Behavioural Research Ethics Committee by telephone on +61 8201 3116, by fax on +61 8201 2035 or by email: human.researchethics@flinders.edu.auhttps://imp.flinders.edu.au/horde/imp/message.php?address=human.researchethics%40flinders.edu.au&name=Andrea+Jacobs&actionID=156&array_index=0&index=542 .

You may ask for the summary of final research report or a duplicate of abstract of his doctoral dissertation.

Thank you very much for your participation.

Yours sincerely

A/Professor Colin MacDougall, Principal Supervisor of Ning Tang
Department of Public Health, School of Medicine,
Faculty of Health Sciences, Flinders University, Australia

B (Français/French/法文)

LETTRE D'INTRODUCTION

-- Le Test-pilote de questionnaire

Monsieur/ Madame,

Cette lettre a pour but de vous présenter Monsieur Ning Tang, un étudiant au doctorat en santé publique au Discipline de la santé publique, à l'École de médecine de l'Université Flinders en Australie.

Dans le cadre de ses études universitaires pour sa thèse de doctorat, il entreprend une recherche impliquant la production (la construction et le test d'un questionnaire multiculturel qui examine les changements de mode de vie des immigrants anglophones, francophones ou sinophones à Ottawa et à Gatineau au Canada). Cette recherche est supervisée par l'A/Professeur Colin MacDougall à l'École de médecine. l'A/Professeur Colin MacDdougall est son directeur principal de thèse.

Il serait très reconnaissant si vous acceptez de l'aider dans cette recherche. Il vous encourage à répondre aux questions du questionnaire multiculturel sur le changement de mode de vie deux fois dans un intervalle de deux semaines. Les instructions sont incluses dans le questionnaire. Il faut environ 20 à 30 minutes pour répondre au questionnaire.Votre participation est volontaire et vous avez le droit de vous retirer à tout moment.

Toute information fournie sera traitée dans la plus stricte confidentialité et aucun des participants ne sera identifié individuellement dans le rapport qui en résultera ou dans d'autres publications.

Toute demande de renseignements que vous pourriez avoir concernant cette recherche peut me être adressée à l'adresse indiquée: l'A/Professeur Colin MacDdougall (le courriel: colin.macdougall@flinders.edu.au; http://www.flinders.edu.au/people/colin.macdougall; téléphone: +61 08 7221 8412).

Si vous avez des préoccupations ou des plaintes concernant la conduite de cette recherche, vous pouvez communiquer avec se directeur principal de thèse (voir les coordonnées ci-dessus) ou du comité éthique de recherche de société et de comportement de l'Université Flinders, par téléphone au +61 8201 3116, par fax au +61 8201 2035 ou par le courriel: human.researchethics@flinders.edu.au .

Vous pouvez demander le sommaire du rapport final de la recherche ou une copie du résumé de la thèse de doctorat.

Merci beaucoup de votre participation.

Veuillez agréer l'expression de mes salutations distinguées,

A/Professeur Colin MacDougall, Directeur principal de thèse de Ning Tang
Département de santé publique, École de médecine
Faculté de sciences de santé, Université Flinders, Australie

C（简化中文/Simplified Chinese/Chinois Simplié）

介　　　绍　　　信

--- 问卷的小规模试验

尊敬的先生/女士，

　　此信是介绍唐宁先生，一位澳大利亚弗林德斯大学医学院公共卫生系的高学历学生（公共卫生博士）。

　　作为大学研究的一部分，他在为完成他的博士论文进行一项研究（发展和试验一个捡验加拿大渥太华和加蒂诺市中英文，法文或中文移民生活方式改变的多元文化问卷）。该项研究受澳大利亚弗林德斯大学医学院科林·麦克杜格尔副教授监管。科林·麦克杜格尔是他的主要导师。

　　他将非常感激你志愿地参与这项研究。你将在两周的间隔中回答这一多元文化的生活方式改变问卷两次，该问卷包含回答指导。完成这一问卷将可能需要你花费约 20-30 分钟。你的参与是自愿的，你有权在调查的任何阶段退出。

　　你所提供的任何信息将被最严格的保密，任何参与者都不会在任何研究报告或其它出版物中被识别。

　　按以下地址你可以向我询问有关这项研究的情况：科林·麦克杜格尔副教授（电子邮箱：colin.macdougall@flinders.edu.au；

http://www.flinders.edu.au/people/colin.macdougall ，电话：+61 08 7221 8415）。

如果你对这项研究的进行有任何疑问和不满，你可以按前面的地址与他的主要导师联系，或与弗林德斯大学社会和行为研究伦理委员会联系：电话：+61 8201 3116，传真：+61 8201 2035，或电子邮箱：human.researchethics@flinders.edu.au。

你可以要求获得最后研究报告的概要或他的博士论文摘要的副本。

非常感谢你的参与。

你真诚的：

科林·麦克杜格尔副教授，唐宁的主要导师

澳大利亚弗林德斯大学卫生科学院医学分校公共卫生系

> *该研究项目已获弗林德斯大学社会和行为研究伦理委员会的批准。欲了解更多有关该项目的伦理审批信息，可与伦理委员会秘书联系，电话：+61 8201 3116，传真：+61 8201 2035 或 电子邮箱：human.researchethics@flinders.edu.au.*

D (传统中文/Traditional Chinese/Chinois Traditionnel)

介　　紹　　信

--- 問卷的小規模試驗

尊敬的先生/女士，

　　此信是介紹唐寧先生，一位澳大利亞弗林德斯大學醫學院公共衛生繫的高學歷學生（公共衛生博士）。

　　作為大學研究的一部分，他在為完成他的博士論文進行一項研究（發展和試驗一個撿驗加拿大渥太華和加蒂諾市中英文,法文或中文移民生活方式改變的多元文化問卷）。該項研究受澳大利亞弗林德斯大學醫學院科林·麥克杜格爾副教授監管。科林·麥克杜格爾是他的主要導師。

　　他將非常感激你志願地參與這項研究。你將在兩週的間隔中回答這一多元文化的生活方式改變問卷兩次，該問卷包含回答指導。完成這一問卷將可能需要你花費約 20-30 分鐘。你的參與是自願的，你有權在調查的任何階段退出。

　　你所提供的任何信息將被最嚴格的保密，任何參與者都不會在任何研究報告或其它出版物中被識別。

　　按以下地址你可以向我詢問有關這項研究的情況：科林·麥克杜格爾副教授（電子郵箱：colin.macdougall@flinders.edu.au；http://www.flinders.edu.au/people/colin.macdougall ，電話：+61 08 7221

8418）。

如果你對這項研究的進行有任何疑問和不滿，你可以按前面的地址與他的主要導師聯繫，或與弗林德斯大學社會和行為研究倫理委員會聯繫：電話：+61 8201 3116，傳真：+61 8201 2035，或電子郵箱：human.researchethics@flinders.edu.au 。

你可以要求獲得最後研究報告的概要或他的博士論文摘要的副本。

非常感謝你的參與。

你真誠的：

科林·麥克杜格爾副教授，唐寧的主要導師

澳大利亞弗林德斯大學衛生科學院醫學分校公共衛生繫

該研究項目已獲弗林德斯大學社會和行為研究倫理委員會的批准。欲了解更多有關該項目的倫理審批信息，可與倫理委員會秘書聯繫，電話：+61 8201 3116，傳真：+61 8201 2035 或電子郵箱：human.researchethics@flinders.edu.au .

Appendix 7:

Documents of the Multicultural Lifestyle Change Survey

Multicultural Lifestyle Change Questionnaire

🍁 Multicultural Canada 🍁

I. Introduction

Thank you for voluntarily participating in this multicultural lifestyle change survey of English, French or Chinese speaking immigrants in Ottawa and Gatineau, Canada. The survey takes about 20-30 minutes. Please do not write your name, contact details on any of the pages; this questionnaire is strictly anonymous: no respondent can be identified. We would very much appreciate if you answer these questions as honestly as you can, and also respect other person's privacy in that matter.

You will receive $20 after responding to the questionnaire once.

Please read the response instructions at the beginning of next page. There are no right or wrong answers.

You are encouraged to respond all the questions. When you don't think any one of the answers really apply, mark the answer that comes closest to it. You can always ask this principal researcher for help. After completing the questionnaire, you may ask for summary of the final report from the principal researcher. Thank you very much.

II. Contact Information

Ning Tang (principal researcher), E-mail: tang0139@flinders.edu.au, telephone: 819-420-1691, mobile phone: 819-708-3099, address: 21-76 rue Richard, Gatineau, Québec J8Y 4Z2, Canada, DrPH (Doctor of Public Health) Student at Department of Public Health, School of Medicine, Flinders University, Australia. Principal supervisor of Ning Tang: A/Professor Colin MacDougall (E-mail: colin.macdougall@flinders.edu.au , telephone: +61 08 7221 8412) at School of Medicine, Flinders University, Australia.

III. Submission Information

Please return this completed questionnaire to the principal researcher, Ning Tang.

For each question, mark your answer by a dark pencil. **Tick only one box in the response boxes for each question unless the specific instructions in some of the questions tell you to tick all boxes (one or more boxes) that apply**.

Proper Mark: X

Section 1: Smoking Change

1.1. Smoking behavior change:
1.1.1. Which of the following best describes you?

☐ **A.** You have never smoked cigarettes

☐ **B.** You smoked before arrival in Canada, but quit after arrival

☐ **C.** You did not smoke before arrival in Canada, but began to smoke after arrival

☐ **D.** If you smoked both before arrival and since arrival in Canada → go to question

   1.1.1.1. and question **1.1.1.2.** below ↓

   1.1.1.1. In the **last year before arrival** in Canada, on average, how many cigarettes did you smoke **each day**?

☐ **a.** 1 – 10 (less than one pack)

☐ **b.** 11 – 20 (one pack)

☐ **c.** 21 – 40 (two packs)

☐ **d.** 41 or more (more than two packs)

☐ **e.** Do not know

   1.1.1.2. In the **past year** in Canada, on average, how many cigarettes did you smoke **each day**?

☐ **a.** 1 – 10 (less than one pack)

☐ **b.** 11 – 20 (one pack)

☐ **c.** 21 – 40 (two packs)

☐ **d.** 41 or more (more than two packs)

☐ **e.** Do not know

1.2. Smoking belief change:

1.2.1. Before arrival in Canada, which of these statements best describes your belief with regards to smoking cigarettes?

☐ **A.** Smoking cigarettes is **<u>extremely bad</u>** for health

☐ **B.** Smoking cigarettes is **<u>very bad</u>** for health

☐ **C.** Smoking cigarettes is **<u>bad</u>** for health

☐ **D.** Smoking cigarettes is **<u>somewhat bad</u>** for health

☐ **E.** Smoking cigarettes is **<u>less than somewhat bad</u>** for health

☐ **F.** Smoking cigarettes is **<u>not bad</u>** for health

☐ **G.** Do not know

1.2.2. Since arrival in Canada, which of these statements best describes your belief with regards to smoking cigarettes?

☐ **A.** Smoking cigarettes is **<u>extremely bad</u>** for health

☐ **B.** Smoking cigarettes is **<u>very bad</u>** for health

☐ **C.** Smoking cigarettes is **<u>bad</u>** for health

☐ **D.** Smoking cigarettes is **<u>somewhat bad</u>** for health

☐ **E.** Smoking cigarettes is **<u>less than somewhat bad</u>** for health

☐ **F.** Smoking cigarettes is **<u>not bad</u>** for health

☐ **G.** Do not know

Section 2: Alcohol Consumption Change

2.1. Alcohol consumption behavior change:
2.1.1. Which of the following best describes you?

☐ **A.** You have never drunk alcohol (including any alcoholic beverage)

☐ **B.** You drank alcohol before arrival in Canada, but quit after arrival

☐ **C.** You did not drink alcohol before arrival in Canada, but began to drink alcohol after arrival

☐ **D.** If you drank alcohol both before arrival and since arrival in Canada ➤ go to question **2.1.1.1.** and question **2.1.1.2.** below ⬇

    2.1.1.1. In the **last year before arrival** in Canada, on average, how much alcohol (beer, wine) did you drink **each day**?

☐**a.** 1/2 bottle of beer or less, or a glass of wine or less

☐**b.** 1 – 1.5 bottles of beer, or 2 – 3 glasses of wine

☐**c.** 2 – 3 bottles of beer, or 4 – 6 glasses of wine

☐**d.** 4 bottles of beer or more, or 7 – 8 glasses of wine or more

☐**e.** Do not know

2.1.1.2. In the **past year** in Canada, on average, how much alcohol (beer, wine) did you drink **each day**?

☐**a.** 1/2 bottle of beer or less, or a glass of wine or less

☐**b.** 1 – 1.5 bottles of beer, or 2 – 3 glasses of wine

☐**c.** 2 – 3 bottles of beer, or 4 – 6 glasses of wine

☐**d.** 4 bottles of beer or more, or 7 – 8 glasses of wine or more

☐**e.** Do not know

2.2. Alcohol consumption belief change:
2.2.1. Before arrival in Canada, which of these statements best describes your belief with regards to drinking alcohol?

☐**A.** Excessive drinking of alcohol is **extremely bad** for health

☐**B.** Excessive drinking of alcohol is **very bad** for health

☐**C.** Excessive drinking of alcohol is **bad** for health

☐**D.** Excessive drinking of alcohol is **somewhat bad** for health

☐**E.** Excessive drinking of alcohol is **less than somewhat bad** for health

☐**F.** Excessive drinking of alcohol is **not bad** for health

☐**G.** Do not know

2.2.2. Since arrival in Canada, which of these statements best describes your belief with regards to drinking alcohol?

☐**A.** Excessive drinking of alcohol is **extremely bad** for health

☐**B.** Excessive drinking of alcohol is **very bad** for health

☐**C.** Excessive drinking of alcohol is **bad** for health

☐**D.** Excessive drinking of alcohol is **somewhat bad** for health

☐ **E.** Excessive drinking of alcohol is **less than somewhat bad** for health

☐ **F.** Excessive drinking of alcohol is **not bad** for health

☐ **G.** Do not know

Section 3: Mood Change

3.1. Mood status change:
3.1.1. Before arrival in Canada, how would you describe your overall mood status?

☐ **A.** Very relaxed

☐ **B.** Relaxed

☐ **C.** Somewhat relaxed

☐ **D.** Neutral (neither relaxed nor anxious)

☐ **E.** Somewhat anxious

☐ **F.** Anxious

☐ **G.** Very anxious

☐ **H.** Do not know

3.1.2. Since arrival in Canada, how would you describe your overall mood status?

☐ **A.** Very relaxed

☐ **B.** Relaxed

☐ **C.** Somewhat relaxed

☐ **D.** Neutral (neither relaxed nor anxious)

☐ **E.** Somewhat anxious

☐ **F.** Anxious

☐ **G.** Very anxious

☐ **H.** Do not know

3.2. Mood belief change:
3.2.1. Before arrival in Canada, which of these statements best described your belief with regards to anxiety?

☐ **A.** Anxiety affects **extremely negatively** health

☐**B.** Anxiety affects **very negatively** health

☐**C.** Anxiety affects **negatively** health

☐**D.** Anxiety affects **somewhat negatively** health

☐**E.** Anxiety affects **less than somewhat negatively** health

☐**F.** Anxiety does **not** affect **negatively** health

☐**G.** Do not know

3.2.2. Since arrival in Canada, which of these statements best describes your belief with regards to anxiety?

☐**A.** Anxiety affects **extremely negatively** health

☐**B.** Anxiety affects **very negatively** health

☐**C.** Anxiety affects **negatively** health

☐**D.** Anxiety affects **somewhat negatively** health

☐**E.** Anxiety affects **less than somewhat negatively** health

☐**F.** Anxiety does **not** affect **negatively** health

☐**G.** Do not know

Section 4: Sleep Change

4.1. Sleep behavior change:
4.1.1. Change of sleep time:
4.1.1.1. Before arrival in Canada, on average, how many hours of sleep did you get **each day**?

☐**A.** 6 hours or less

☐**B.** 7 – 8 hours

☐**C.** 9 hours

☐**D.** 10 hours or more

☐**E.** Do not know

4.1.1.2. Since arrival in Canada, on average, how many hours of sleep do you get **each day**?

☐**A.** 6 hours or less

☐ **B.** 7 – 8 hours

☐ **C.** 9 hours

☐ **D.** 10 hours or more

☐ **E.** Do not know

4.1.2. Change of sleep quality:
4.1.2.1. Before arrival in Canada, how was your quality of sleep **each day**?

☐ **A.** Excellent

☐ **B.** Very good

☐ **C.** Good.

☐ **D.** Fair (neither good nor bad).

☐ **E.** Bad

☐ **F.** Very bad

☐ **G.** Extremely bad

☐ **H.** Do not know

4.1.2.2. Since arrival in Canada, how is your quality of sleep **each day**?

☐ **A.** Excellent

☐ **B.** Very good

☐ **C.** Good

☐ **D.** Fair (neither good nor bad)

☐ **E.** Bad

☐ **F.** Very bad

☐ **G.** Extremely bad

☐ **H.** Do not know

4.2. Sleep belief change:
4.2.1. Before arrival in Canada, which of these statements best describes your belief with regards to sleep?

☐ **A.** Daily high quality sleep of 7-8 hours **contributes extremely** to health

☐ **B.** Daily high quality sleep of 7-8 hours **contributes greatly** to health

☐**C.** Daily high quality sleep of 7-8 hours **contributes** to health

☐**D.** Daily high quality sleep of 7-8 hours **contributes somewhat** to health

☐E. Daily high quality sleep of 7-8 hours **contributes less than somewhat** to health

☐**F.** Daily high quality sleep of 7-8 hours does **not contribute** to health

☐G. Do not know

4.2.2. Since arrival in Canada, which of these statements best describes your belief with regards to sleep?

☐**A.** Daily high quality sleep of 7-8 hours **contributes extremely** to health

☐**B.** Daily high quality sleep of 7-8 hours **contributes greatly** to health

☐**C.** Daily high quality sleep of 7-8 hours **contributes** to health

☐**D.** Daily high quality sleep of 7-8 hours **contributes somewhat** to health

☐E. Daily high quality sleep of 7-8 hours **contributes less than somewhat** to health

☐**F.** Daily high quality sleep of 7-8 hours does **not contribute** to health

☐**G.** Do not know

Section 5: Physical Activity Change

5.1. Physical activity behavior change:
5.1.1. Change of physical exercise time:
5.1.1.1. Before arrival in Canada, on average, how much physical exercise did you do **each week**?

☐**A.** An hour or less

☐**B.** 2 – 3 hours

☐**C.** 4 – 5 hours

☐**D.** 6 – 7 hours

☐**E.** 8 hours or more

☐**F.** Do not know

5.1.1.2. Since arrival in Canada, on average, how much physical exercise do you do **each week**?

☐**A.** An hour or less

☐ **B.** 2 – 3 hours

☐ **C.** 4 – 5 hours

☐ **D.** 6 – 7 hours

☐ **E.** 8 hours or more

☐ **F.** Do not know

5.1.2. Change of physical activity level:
5.1.2.1. Before arrival in Canada, which of these descriptions best represents your physical activity level of **a day**?

☐ **A. Very light** (always sitting at work or home during a day, very little walking and housework)

☐ **B. Light** (often sitting at work or home during a day, sometimes standing, a little walking and housework)

☐ **C. Moderate** (sometimes sitting or standing at work or home during a day, sometimes walking, with activities of about one to two hours, such as operating machine and heavy equipment, gardening, housework, bowling, playing golf, etc.)

☐ **D. Moderate heavy** (often standing at work or home during a day, often walking, with moderate to vigorous activities, such as hiking, yoga, Chinese TaiJiQuan, fitness exercises, etc.)

☐ **E**. **Heavy** (always standing at work or home during a day, frequently walking, with high level of vigorous activities both at work or during leisure hours, such as running, soccer, swimming, skiing, etc.)

☐ **F.** Do not know

5.1.2.2. Since arrival in Canada, which of these descriptions best represents your physical activity level of **a day**?

☐ **A. Very light** (always sitting at work or home during a day, very little walking and housework)

☐ **B. Light** (often sitting at work or home during a day, a little walking, sometimes standing and doing housework)

☐ **C. Moderate** (sometimes sitting or standing at work or home during a day, sometimes walking, with activities of about one to two hours, such as operating machine and heavy equipment, gardening, housework, bowling, playing golf, etc.)

☐ **D. Moderate heavy** (often standing at work or home during a day, often walking, with moderate to vigorous activities, such as hiking, yoga, Chinese TaiJiQuan, fitness exercises, etc.)

☐**E**. **Heavy** (always often standing at work or home during a day, frequently walking, with high level of vigorous activities both at work or during leisure hours, such as running, soccer, swimming, skiing, etc.)

☐**F.** Do not know

5.1.3. Change of physical exercise items:
5.1.3.1. Before arrival in Canada, which physical exercises did you take part in **each week**? *Please tick all boxes (one or more boxes) that apply or write your answer in the space "Other" provided in the response box below if applicable.*

☐**A.** Walking   ☐**G.** Soccer   ☐**M.** Swimming

☐**B.** Jogging/Running   ☐**H.** Basketball   ☐**N.** Yoga

☐**C.** Biking   ☐**I.** Hockey   ☐**O.** Chinese TaiJiQuan/QiGong

☐**D.** Hiking   ☐**J.** Tennis   ☐**P.** Fitness exercises

☐**E.** Skiing   ☐**K.** Table tennis   ☐**Q.** Other (please specify): _____

☐**F.** Skating   ☐**L.** Badminton   ☐**R.** No exercise

5.1.3.2. Since arrival in Canada, which physical exercises do you take part in **each week**? *Please tick all boxes (one or more boxes) that apply or write your answer in the space "Other" provided in the response box below if applicable.*

☐**A.** Walking   ☐**G.** Soccer   ☐**M.** Swimming

☐**B.** Jogging/Running   ☐**H.** Basketball   ☐**N.** Yoga

☐**C.** Biking   ☐**I.** Hockey   ☐**O.** Chinese TaiJiQuan/QiGong

☐**D.** Hiking   ☐**J.** Tennis   ☐**P.** Fitness exercises

☐**E.** Skiing   ☐**K.** Table tennis   ☐**Q.** Other (please specify): _____

☐**F.** Skating   ☐**L.** Badminton   ☐**R.** No exercise

5.2. Physical exercise belief change:
5.2.1. Before arrival in Canada, which of these statements best describes your belief with regards to physical exercise?

☐**A.** The above mentioned exercises can **very strongly promote** health

☐**B.** The above mentioned exercises can **strongly promote** health

☐**C.** The above mentioned exercises can **promote** health

□**D.** The above mentioned exercises can **somewhat promote** health

□**E.** The above mentioned exercises can **less than somewhat promote** health

□**F.** The above mentioned exercises can**not promote** health

□**G.** Do not know

5.2.2. Since arrival in Canada, which of these statements best describes your belief with regards to physical exercise?

□**A.** The above mentioned exercises can **very strongly promote** health

□**B.** The above mentioned exercises can **strongly promote** health

□**C.** The above mentioned exercises can **promote** health

□**D.** The above mentioned exercises can **somewhat promote** health

□**E.** The above mentioned exercises can **less than somewhat promote** health

□**F.** The above mentioned exercises can**not promote** health

□**G.** Do not know

Section 6: Dietary Change

6.1. Dietary behavior change:
6.1.1. Change of **nutritional food** consumption:
Since arrival in Canada, did your consumption of the **nutritional foods** (i.e. lean meat, beef, chicken, fish, egg, fresh fruit and vegetable, etc.) change **each week**?

□**A.** Changed ➞ go to question **6.1.1.1.** and question **6.1.1.2.** below ⬇

□**B.** Not changed

□**C.** Do not know

        6.1.1.1. Since arrival in Canada, which **nutritional foods** did you **increase** consuming **each week**? *Please **consider deeply every alternative before choice, tick all boxes (one or more boxes) that apply or write your answer in the space "Other" provided** in the response box below if applicable.*

        Note:
        The word "**increase**" in the question asked refers to the increase of food type and food quantity. For example, if you did not eat "eggs" before arrival in Canada, but you have eaten "eggs" since arrival in Canada, you

should choose "**f.** Egg"; if you ate "4 eggs" before arrival in Canada on average each week, but you have eaten "7 eggs" since arrival in Canada on average each week, you should also choose "**f.** Egg".

□ **a.** Lean meat □ **h.** Low-fat milk □ **o.** Potato

□ **b.** Beef □ **i.** Yogurt □ **p.** Sweet potato

□ **c.** Chicken □ **j.** Tofu □ **q.** Fresh vegetable

□ **d.** Fish □ **k.** Rice □ **r.** Fresh fruit

□ **e.** Shrimp □ **l.** Pastes □ **s.** Natural fruit juices

□ **f.** Egg □ **m.** Oatmeal □ **t.** Tea

□ **g.** Honey □ **n.** Maize □ **u.** Other (please specify): _____

6.1.1.2. Since arrival in Canada, which **nutritional foods** did you **decrease** consuming **each week**? *Please consider deeply every alternative before choice, tick all boxes (one or more boxes) that apply or write your answer in the space "Other" provided in the response box below if applicable.*

Note:

The word "**decrease**" in the question asked refers to the decrease of food type and food quantity. For example, if you ate "eggs" before arrival in Canada, but you have not eaten "eggs" since arrival in Canada, you should choose "**f.** Egg"; if you ate "4 eggs" before arrival in Canada on average each week, but you have eaten "2 eggs" since arrival in Canada on average each week, you should also choose "**f.** Egg".

□ **a.** Lean meat □ **h.** Low-fat milk □ **o.** Potato

□ **b.** Beef □ **i.** Yogurt □ **p.** Sweet potato

□ **c.** Chicken □ **j.** Tofu □ **q.** Fresh vegetable

□ **d.** Fish □ **k.** Rice □ **r.** Fresh fruit

□ **e.** Shrimp □ **l.** Pastes □ **s.** Natural fruit juices

□ **f.** Egg □ **m.** Oatmeal □ **t.** Tea

□ **g.** Honey □ **n.** Maize □ **u.** Other (please specify): _____

6.1.2. Change of **junk and processed food** consumption:

Since arrival in Canada, did your consumption of the **junk and processed foods** (i.e. fat meat, fried foods, canned foods, high-sugar fruit juices, etc.) change **each week**?

☐**A.** Changed ➤ go to question **6.1.2.1.** and question **6.1.2.2.** below ⬇

☐**B.** Not changed

☐**C.** Do not know

      6.1.2.1. Since arrival in Canada, which **junk and processed foods** did you **increase** consuming **each week**? *Please consider deeply every alternative before choice, tick all boxes (one or more boxes) that apply or write your answer in the space "Other" provided in the response box below if applicable.*

      Note:
The word "**increase**" in the question asked refers to the increase of food type and food quantity. For example, if you did not eat "fatty" before arrival in Canada, but you have eaten "fatty" since arrival in Canada, you should choose "**a.** Fatty"; if you ate "fatty 4 times" before arrival in Canada on average each week, but you have eaten "fatty 7 times" since arrival in Canada on average each week, you should also choose "**a.** Fatty".

☐**a.** Fatty	☐**h.** High-sugar cakes and desserts
☐**b.** Fried foods	☐**i.** Candy and chocolate bars
☐**c.** Pickled vegetable	☐**j.** Soft drinks and colas
☐**d.** Salted meat	☐**k.** High-sugar fruit juices
☐**e.** Sausage and dried meat	☐**l.** Ice cream and popsicle
☐**f.** Chips, biscuits, instant noodles	☐**m.** Coffee with sugar
☐**g.** Canned foods	☐**n.** Others (specify): _____

      6.1.2.2. Since arrival in Canada, which **junk and processed foods** did you **decrease** consuming **each week**? *Please consider deeply every alternative before choice, tick all boxes (one or more boxes) that apply or write your answer in the space "Other" provided in the response box below if applicable.*

      Note:
The word "**decrease**" in the question asked refers to the decrease of food type and food quantity. For example, if you ate "fatty" before arrival in

Canada, but you have not eaten "fatty" since arrival in Canada, you should choose "**a.** Fatty"; if you ate "fatty 4 times" before arrival in Canada on average each week, but you have eaten "fatty 2 times" since arrival in Canada on average each week, you should also choose "**a.** Fatty".

☐ **a.** Fatty   ☐ **h.** High-sugar cakes and desserts

☐ **b.** Fried foods   ☐ **i.** Candy and chocolate bars

☐ **c.** Pickled vegetable   ☐ **j.** Soft drinks and colas

☐ **d.** Salted meat   ☐ **k.** High-sugar fruit juices

☐ **e.** Sausage and dried meat   ☐ **l.** Ice cream and popsicle

☐ **f.** Chips, biscuits, instant noodles   ☐ **m.** Coffee with sugar

☐ **g.** Canned foods   ☐ **n.** Other (please specify): _____

6.2. Dietary belief change:
6.2.1. Before arrival in Canada, which of these statements best describes your belief with regards to **nutritional foods**?

☐ **A.** The above mentioned nutritional foods can **very strongly promote** health

☐ **B.** The above mentioned nutritional foods can **strongly promote** health

☐ **C.** The above mentioned nutritional foods can **promote** health

☐ **D.** The above mentioned nutritional foods can **somewhat promote** health

☐ **E.** The above mentioned nutritional foods can **less than somewhat promote** health

☐ **F.** The above mentioned nutritional foods can**not promote** health

☐ **G.** Do not know

6.2.2. Since arrival in Canada, which of these statements best describes your belief with regards to **nutritional foods**?

☐ **A.** The above mentioned nutritional foods can **very strongly promote** health.

☐ **B.** The above mentioned nutritional foods can **strongly promote** health

☐ **C.** The above mentioned nutritional foods can **promote** health

☐ **D.** The above mentioned nutritional foods can **somewhat promote** health

☐ **E.** The above mentioned nutritional foods can **less than somewhat promote** health

☐ **F.** The above mentioned nutritional foods can**not promote** health

☐ **G.** Do not know

6.2.3. Before arrival in Canada, which of these statements best described your belief with regards to **junk and processed foods**?

☐ **A.** The above mentioned junk and processed foods have **very strongly adverse effects** on health

☐ **B.** The above mentioned junk and processed foods have **strongly adverse effects** on health

☐ **C.** The above mentioned junk and processed foods have **adverse effects** on health

☐ **D.** The above mentioned junk and processed foods have **somewhat adverse effects** on health

☐ **E.** The above mentioned junk and processed foods have **less than somewhat adverse effects** on health

☐ **F.** The above mentioned junk and processed foods have **no adverse effect** on health

☐ **G.** Do not know

6.2.4. Since arrival in Canada, which of these statements best describes your belief with regards to **junk and processed foods**?

☐ **A.** The above mentioned junk and processed foods have **very strongly adverse effects** on health

☐ **B.** The above mentioned junk and processed foods have **strongly adverse effects** on health

☐ **C.** The above mentioned junk and processed foods have **adverse effects** on health

☐ **D.** The above mentioned junk and processed foods have **somewhat adverse effects** on health

☐ **E.** The above mentioned junk and processed foods have **less than somewhat adverse effects** on health

☐ **F.** The above mentioned junk and processed foods have **no adverse effect** on health

☐ **G.** Do not know

Section 7: Health Status Change

7.1. Before arrival in Canada, how would you estimate your overall health status?

☐ **A.** Excellent

☐ **B.** Very good

☐ **C.** Good

☐ **D.** Fair (neither good nor poor)

☐ **E.** Poor

☐ **F.** Very poor

☐ **G.** Extremely poor

☐ **H.** Do not know

7.2. Since arrival in Canada, how would you estimate your overall health status?

☐ **A.** Excellent

☐ **B.** Very good

☐ **C.** Good

☐ **D.** Fair (neither good nor poor)

☐ **E.** Poor

☐ **F.** Very poor

☐ **G.** Extremely poor

☐ **H.** Do not know

Section 8: Demographic Questions

8.1. Which is your mother tongue?

☐ **A.** English

☐ **B.** French

☐ **C.** Chinese

8.2. What language (s) can you speak? *Please __tick all boxes (one or more boxes) that apply or write your answer in the space provided__ in the response boxes below if applicable.*

☐ **A.** English　　　　　　　　　　☐ **C.** Chinese

☐ **B.** French　　　　　　　　　　☐ **D.** Other (please specify): _____

8.3. What is your country of origin? _____

8.4. Which age group do you fit into?

☐ **A.** 18 – 24 years

☐ **B.** 25 – 34 years

☐ **C.** 35 – 44 years

☐ **D.** 45 – 54 years

☐ **E.** 55 – 64 years

☐ **F.** 65 – 74 years

☐ **G.** 75 – 84 years

☐ **H.** 85 years or older

8.5. What is your gender?

☐ **A.** Male

☐ **B.** Female

8.6. What is your current marital status?

☐ **A.** Married

☐ **B.** Co-habiting

☐ **C.** Divorced

☐ **D.** Widow / widower

☐ **E.** Separated

☐ **F.** Single (never married)

☐ **G.** Would rather not say

8.7. What is your category of immigration?

☐ **A.** Skilled or business **immigrant of principal applicant category** or **single applicant category**

☐ **B.** Skilled or business **immigrant of spouse and dependent category** (**spouse or child of principal applicant**)

☐ **C.** **Family class immigrant** (family immigrant who immigrated to Canada through marriage to a Canadian citizen or permanent resident, or family immigrant sponsored by a close relative or family member who is a Canadian citizen or permanent resident)

☐**E.** Other

8.8. How long have you lived in Canada?

☐**A.** 1 year or near 1 year

☐**B.** 2 – 5 years

☐**C.** 6 – 10 years

☐**D.** 11 – 20 years

☐**E.** 21 years or over

8.9. What is your highest level of education?

☐**A.** No schooling

☐**B.** Primary school

☐**C.** Secondary school

☐**D.** Professional training

☐**E.** College

☐**F.** University

☐**G.** Post-graduate

8.10. What is your current employment status?

☐**A.** Employed full-time (35 hours or more per week)

☐**B.** Employed part-time (less than 35 hours per week)

☐**C.** Employer or self-employed

☐**D.** Retired

☐**E.** Unpaid work

☐**F.** Unemployed

8.11. What is your current primary occupation?

☐**A.** Manager or administrator

☐**B.** Professional (in government, legislation, science, engineering, education, health, enterprise, business, trade, transportation, service, sport and etc.)

☐**C.** Labourer or farmer

☐ **D.** Student

☐ **E.** Volunteer

☐ **F.** Other (please specify): _____

☐ **G.** No occupation

8.12. What is your current religion?

☐ **A.** Buddhism

☐ **B.** Christianity

☐ **C.** Islam

☐ **D.** Judaism

☐ **E.** Other (please specify): _____

☐ **F.** No religion

8.13. How much was your personal gross income (income before tax deduction) past year?

☐ **A.** Less than $30,000

☐ **B.** $30,000 – $49,999

☐ **C.** $50,000 – $69,999

☐ **D.** $70,000 – $99,999

☐ **E.** $100,000 or more

☐ **F.** Do not know

Please review carefully your answers!

Thank you for taking the time to complete this questionnaire! Before sending the questionnaire back to us, please check that your answers do not appear accidentally errors. Your insight and information are very valuable to us in multicultural health research and making informed decision in Canada. We will use your feedback to improve future research!

Please use the space below to provide additional comments on how we might improve our job. If you have any further questions or concerns about this survey, please contact Ning Tang at E-mail: tang0139@flinders.edu.au or telephone: (819) 420-1691. Thank you so much!

Healthy Eating !　　　　**Healthy Living !**

Questionnaire multiculturel sur le changement de mode de vie

🍁 Canada Multiculturel 🍁

1. Introduction

Nous vous remercions de vous joindre à nous dans cette enquête multiculturelle sur les changements de mode de vie des immigrants anglophones, francophones ou sinophones à Ottawa et Gatineau. L'enquête prend environ 20-30 minutes à réaliser. Merci de n'écrire votre nom, ni des infos personnelles sur l'une des pages; Ce questionnaire est strictement anonyme: personne ne sera pas en mesure d'identifier les répondants. Nous vous remerions si vous répondez aux questions le plus honnêtement possible et, également, respectez la vie privée des autres en remlissant le questionnaire.

Vous recevrez 20 $ après avoir répondu au questionnaire une fois.

Prière de lire les directives pour les réponses au début de la page suivante. Il n'y a pas de bonnes ni de mauvaises réponses à ce questionnaire.

Vous êtes encouragés à répondre à toutes les questions. Lorsque vous ne pensez pas l'une des réponses réellement appliquant, cochez la réponse qui vient le plus proche. Il vous sera également possible de demander de l'aide au chercheur principal. Après avoir complété le questionnaire, vous pourrez demander au chercheur un résumé du rapport final. Merci beaucoup.

2. Information de Contact

Ning Tang (chercheur principal), le courriel: tang0139@flinders.edu.au, le téléphone: 819-420-1691, le téléphone cellulaire: 819-708-3099, l'adresse: 21-76 rue Richard, Gatineau, Québec J8Y 4Z2, Canada, DrSP (doctorat en santé publique), étudiant au département de santé publique, l'école de médecine, l'université Flinders en Australie. Le directeur principal de thèse de Ning Tang: l'A/Professeur Colin MacDougall (le courriel: colin.macdougall@flinders.edu.au , le téléphone: +61 08 7221 8412) à l'École de Médecine, l'Université Flinders en Australie.

3. Information de Soumission

Merci de retourner ce questionnaire complété au chercheur principal, Ning Tang.

Directives pour les réponses:
Pour chaque question, marquez votre réponse avec un crayon noir. **Cochez une seule case parmi les cases disponibles à chaque question. Il est possible parfois de cocher toutes les cases (une seule case ou plusieurs) qui s'appliquent si cela est demandé.**

Marque appropriée: ☒

Section 1: Changement lié à la consommation du tabac

1. 1. Changement de comportement lié au tabac:
1.1.1. Lequel des énoncés suivants vous décrit le mieux?

☐ **A.** Vous n'avez jamais fumé la cigarette

☐ **B.** Vous avez fumé avant d'arriver au Canada, mais vous avez cessé après votre arrivée

☐ **C.** Vous n'avez pas fumé avant d'arriver au Canada, mais vous avez commencé à fumer après votre arrivée

☐ **D.** Si vous avez fumé avant d'arriver et depuis votre arrivée au Canada ➞ répondez à la question **1.1.1.1.** et à la question **1.1.1.2.** ci-dessous ⬇

    1.1.1.1. Dans la **dernière année avant d'arriver** au Canada, en moyenne, combien de cigarettes avaiez-vous fumées **chaque jour**?

    ☐ **a.** 1 – 10 (moins d'un paquet)

    ☐ **b.** 11 – 20 (un paquet)

    ☐ **c.** 21 – 40 (deux paquets)

    ☐ **d.** 41 ou plus (plus de deux paquets)

    ☐ **e.** Ne savez pas

    1.1.1.2. Au cours de la **dernière année** au Canada, en moyenne, combien de cigarettes fumiez-vous **chaque jour**?

    ☐ **a.** 1 – 10 (moins d'un paquet)

    ☐ **b.** 11 – 20 (un paquet)

    ☐ **c.** 21 – 40 (deux paquets)

    ☐ **d.** 41 ou plus (plus de deux paquets)

☐**e.** Ne savez pas

1.2. Le changement de croyance de fumer:
1.2.1. Avant votre arrivée au Canada, laquelle de ces affirmations décrit le mieux votre croyance en ce qui concerne la cigarette?

☐**A.** Fumer la cigarette est <u>**extrêmement mauvais**</u> pour la santé

☐**B.** Fumer la cigarette est <u>**très mauvais**</u> pour la santé

☐**C.** Fumer la cigarette est <u>**mauvais**</u> pour la santé

☐**D.** Fumer la cigarette est <u>**peu mauvais**</u> pour la santé

☐**E.** Fumer la cigarette est <u>**très peu mauvais**</u> pour la santé

☐**F.** Fumer la cigarette <u>**n'est pas mauvais**</u> pour la santé

☐**G.** Ne savez pas

1.2.2. Depuis votre arrivée au Canada, laquelle de ces affirmations décrit le mieux votre croyance en ce qui concerne la cigarette?

☐**A.** Fumer la cigarette est <u>**extrêmement mauvais**</u> pour la santé

☐**B.** Fumer la cigarette est <u>**très mauvais**</u> pour la santé

☐**C.** Fumer la cigarette est <u>**mauvais**</u> pour la santé

☐**D.** Fumer la cigarette est <u>**peu mauvais**</u> pour la santé

☐**E.** Fumer la cigarette est <u>**très peu mauvais**</u> pour la santé

☐**F.** Fumer la cigarette <u>**n'est pas mauvais**</u> pour la santé

☐**G.** Ne savez pas

Section 2: Changement lié à la consommation de l'alcool

2. 1. Changement comportemental lié à la consommation de l'alcool:
2.1.1. Lequel des énoncés suivants vous décrit le mieux?

☐**A.** Vous n'avez jamais bu de l'alcool (y compris toute boisson alcoolisée)

☐**B.** Vous avez bu de l'alcool avant d'arriver au Canada, mais vous avez cessé après votre arrivée

☐**C.** Vous n'avez pas bu de l'alcool avant d'arriver au Canada, mais vous avez commencé à boire de l'alcool après votre arrivée

☐**D.** Si vous avez bu de l'alcool avant d'arriver et depuis votre arrivée au Canada ➔ répondez à la question **2.1.1.1.** et à la question **2.1.1.2.** ci-dessous ⬇

2.1.1.1. Dans la **dernière année avant d'arriver** au Canada, en moyenne, quelle quantité de l'alcool (bière, vin) aviez-vous bu **chaque jour**?

☐**a.** 1/2 bouteille de bière ou moins, ou 1/2 verre de vin ou moins

☐**b.** 1 – 1.5 bouteille de bière, ou 2 – 3 verres de vin

☐**c.** 2 – 3 bouteilles de bière, ou 4 – 6 verres de vin

☐**d.** 4 bouteilles de bière ou plus, ou 7 – 8 verres de vin ou plus

☐**e.** Ne savez pas

2.1.1.2. Au cours de la **dernière année** au Canada, en moyenne, quelle quantité de l'alcool (bière, vin) buvez-vous **chaque jour**?

☐**a.** 1/2 bouteille de bière ou moins, ou un verre à vin ou moins

☐**b.** 1 – 1.5 bouteille de bière, ou 2 – 3 verres de vin

☐**c.** 2 – 3 bouteilles de bière, ou 4 – 6 verres de vin

☐**d.** 4 bouteilles de bière ou plus, ou 7 – 8 verres de vin ou plus

☐**e.** Ne savez pas

2.2. Le changement de croyance de consommation d'alcool:
2.2.1. Avant votre arrivée au Canada, laquelle de ces affirmations décrit le mieux votre croyance en ce qui concerne l'alcool?

☐**A.** La consommation excessive de l'alcool est **extrêmement mauvaise** pour la santé

☐**B.** La consommation excessive de l'alcool est **très mauvaise** pour la santé

☐**C.** La consommation excessive de l'alcool est **mauvaise** pour la santé

☐**D.** La consommation excessive de l'alcool est **peu mauvaise** pour la santé

☐**E.** La consommation excessive de l'alcool est **très peu mauvaise** pour la santé

☐**F.** La consommation excessive de l'alcool **n'est pas mauvaise** pour la santé

☐**G.** Ne savez pas

2.2.2. Depuis votre arrivée au Canada, laquelle de ces affirmations décrit le mieux votre croyance en ce qui concerne l'alcool?

☐**A.** La consommation excessive de l'alcool est **extrêmement mauvaise** pour la santé

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☐**B.** La consommation excessive de l'alcool est **très mauvaise** pour la santé

☐**C.** La consommation excessive de l'alcool est **mauvaise** pour la santé

☐**D.** La consommation excessive de l'alcool est **peu mauvaise** pour la santé

☐**E.** La consommation excessive de l'alcool est **très peu mauvaise** pour la santé

☐**F.** La consommation excessive de l'alcool **n'est pas mauvaise nm** pour la santé

☐**G.** Ne savez pas

Section 3: Changement lié à l'humeur

3.1. C**hangement de statut lié à l'humeur:**
3.1.1. Avant votre arrivée au Canada, comment décririez-vous votre humeur générale?

☐**A.** Très décontractée

☐**B.** Décontracté

☐**C.** Peu décontractée

☐**D.** Neutre (ni décontractée n'inquiète)

☐**E.** Peu inquiète

☐**F.** Inquiète

☐**G.** Très inquiète

☐**H.** Ne savez pas

3.1.2. Depuis votre arrivée au Canada, comment décririez-vous votre humeur générale?

☐**A.** Très décontractée

☐**B.** Décontractée

☐**C.** Peu décontractée

☐**D.** Neutre (ni décontractée n'inquiète)

☐**E.** Peu inquiète

☐**F.** Inquiète

☐**G.** Très inquiète

☐**H.** Ne savez pas

3.2. Changement de croyance lié à l'humeur:

3.2.1. Avant votre arrivée au Canada, laquelle de ces affirmations décrit le mieux votre croyance en ce qui concerne l'inquiétude.

☐ **A.** L'inquiétude affecte **extrêmement négativement** la santé

☐ **B.** L'inquiétude affecte **très négativement** la santé

☐ **C.** L'inquiétude affecte **négativement** la santé

☐ **D.** L'inquiétude affecte **peu négativement** la santé

☐ **E.** L'inquiétude affecte **très peu négativement** la santé

☐ **F.** L'inquiétude **n'**affecte **pas négativement** la santé

☐ **G.** Ne savez pas

3.2.2. Depuis votre arrivée au Canada, laquelle de ces affirmations décrit le mieux votre croyance en ce qui concerne l'inquiétude?

☐ **A.** L'inquiétude affecte **extrêmement négativement** la santé

☐ **B.** L'inquiétude affecte **très négativement** la santé

☐ **C.** L'inquiétude affecte **négativement** la santé

☐ **D.** L'inquiétude affecte **peu négativement** la santé

☐ **E.** L'inquiétude affecte **très peu négativement** la santé

☐ **F.** L'inquiétude **n'**affecte **pas négativement** la santé

☐ **G.** Ne savez pas

Section 4: Changement lié au sommeil

4.1. Changement de comportement lié au sommeil:

4.1.1. Changement du temps de sommeil:

4.1.1.1. Avant votre arrivée au Canada, en moyenne, combien d'heures de sommeil aviez-vous **chaque jour**?

☐ **A.** 6 heures ou moins

☐ **B.** 7 – 8 heures

☐ **C.** 9 heures

☐ **D.** 10 heures ou plus

☐ **E.** Ne savez pas

4.1.1.1. Depuis votre arrivée au Canada, en moyenne, combien d'heures de sommeil avez-vous **chaque jour**?

☐ **A.** 6 heures ou moins

☐ **B.** 7 – 8 heures

☐ **C.** 9 heures

☐ **D.** 10 heures ou plus.

☐ **E.** Ne savez pas

4.1.2. Changement de la qualité de sommeil:

4.1.2.1. Avant votre arrivée au Canada, comment était la qualité de votre sommeil **chaque jour**?

☐ **A.** Excellente

☐ **B.** Très bonne

☐ **C.** Bonne

☐ **D.** Moyenne (ni bonne ni mauvaise)

☐ **E.** Mauvaise

☐ **F.** Très mauvaise

☐ **G.** Extrêmement mauvaise

☐ **H.** Ne savez pas

4.1.2.2. Depuis votre arrivée au Canada, comment est la qualité de votre sommeil **chaque jour**?

☐ **A.** Excellente

☐ **B.** Très bonne

☐ **C.** Bonne

☐ **D.** Moyenne (ni bonne ni mauvaise)

☐ **E.** Mauvaise

☐ **F.** Très mauvaise

☐ **G.** Extrêmement mauvaise

☐ **H.** Ne savez pas

4.2. Changement de croyance lié au sommeil:

4.2.1. Avant votre arrivée au Canada, laquelle de ces affirmations décrit le mieux votre croyance en ce qui concerne au sommeil?

☐**A.** Le sommeil quotidien de haute qualité au moins de 7-8 heures **contribue extrêmement** à la santé.

☐**B.** Le sommeil quotidien de haute qualité au moins de 7-8 heures **contribue très bien** à la santé

☐**C.** Le sommeil quotidien de haute qualité au moins de 7-8 heures **contribue** à la santé

☐**D.** Le sommeil quotidien de haute qualité au moins de 7-8 heures **contribue peu** à la santé

☐**E.** Le sommeil quotidien de haute qualité au moins de 7-8 heures **contribue très peu** à la santé

☐**F.** Le sommeil quotidien de haute qualité au moins de 7-8 heures **ne contribue pas** à la santé

☐**G.** Ne savez pas

4.2.2. Depuis votre arrivée au Canada, laquelle de ces affirmations décrit le mieux votre croyance en ce qui concerne au sommeil?

☐**A.** Le sommeil quotidien de haute qualité au moins de 7-8 heures **contribue extrêmement** à la santé

☐**B.** Le sommeil quotidien de haute qualité au moins de 7-8 heures **contribue très bien** à la santé

☐**C.** Le sommeil quotidien de haute qualité au moins de 7-8 heures **contribue** à la santé

☐**D.** Le sommeil quotidien de haute qualité au moins de 7-8 heures **contribue peu** à la santé

☐**E.** Le sommeil quotidien de haute qualité au moins de 7-8 heures **contribue très peu** à la santé

☐**F.** Le sommeil quotidien de haute qualité au moins de 7-8 heures **ne contribue pas** à la santé

☐**G.** Ne savez pas

Section 5: Changement lié à l'activité physique

5.1. C**hangement de comportement lié à l'activité physique:**
5.1.1. Changement du temps d'exercice physique:

5.1.1.1. Avant votre arrivée au Canada, en moyenne, combien de temps consacriez-vous aux exercices physiques **chaque semaine**?

☐ **A.** Une heure ou moins

☐ **B.** 2 – 3 heures

☐ **C.** 4 – 5 heures

☐ **D.** 6 – 7 heures

☐ **E.** 8 heures ou plus

☐ **F.** Ne savez pas

5.1.1.2. Depuis votre arrivée au Canada, en moyenne, combien de temps consacrez-vous aux exercices physiques **chaque semaine**?

☐ **A.** Une heure ou moins

☐ **B.** 2 – 3 heures

☐ **C.** 4 – 5 heures

☐ **D.** 6 – 7 heures

☐ **E.** 8 heures ou plus

☐ **F.** Ne savez pas

5.1.2. Changement des niveaux d'activité physique:

5.1.2.1. Avant votre arrivée au Canada, laquelle de ces descriptions représente le mieux votre niveau d'activité physique **d'une journée**?

☐ **A. Très faible** (toujours assis au travail ou à la maison durant la journée, très peu de marche ou de ménage)

☐ **B. Faible** (souvent assis au travail ou à la maison durant la journée, parfois debout, peu de marche et de ménage)

☐ **C. Modéré** (parfois assis au travail ou à la maison durant la journée, parfois une marche, avec des activités d'environ une à deux heures, comme faire fonctionner de la machinerie ou de l'équipement lourd, faire du jardinage, du ménage, jouer à la pétanque, jouer au golf, etc.)

☐ **D. Fort** (souvent debout au travail ou à la maison durant la journée, souvent une marche, avec des activités modérées à vigoureuses, comme randonnée pédestre, yoga, TaiJiQuan Chinois, exercices du corps pour la santé, etc.)

☐ **E. Très fort** (toujours debout au travail ou à la maison durant la journée, très souvent une marche, avec un haut niveau d'activités vigoureuses à la fois au travail ou pendant les heures de loisir, comme course, soccer, natation, ski, etc.)

☐ **F.** Ne savez pas

5.1.2.2. Depuis votre arrivée au Canada, laquelle de ces descriptions représente le mieux votre niveau d'activité physique **d'une journée**?

☐ **A. Très faible** (toujours assis au travail ou à la maison durant la journée, très peu de marche ou de ménage)

☐ **B. Faible** (souvent assis au travail ou à la maison durant la journée, parfois debout, peu de marche et de ménage)

☐ **C. Modéré** (parfois assis au travail ou à la maison durant la journée, parfois une marche, avec des activités d'environ un à deux heures, comme faire fonctionner de la machinerie ou de l'équipement lourd, faire du jardinage, du ménage, jouer à la pétanque, jouer au golf, etc.)

☐ **D. Fort** (souvent debout au travail ou à la maison durant la journée, souvent une marche, avec des activités modérées à vigoureuses, comme randonnée pédestre, yoga, TaiJiQuan Chinois, exercices corps pour la santé, etc.)

☐ **E**. **Très fort** (toujours debout au travail ou à la maison durant la journée, très souvent une marche, avec un haut niveau d'activités vigoureuses à la fois au travail ou pendant les heures de loisir, comme course, soccer, natation, ski, etc.)

☐ **F.** Ne savez pas

5.1.3. Changement des articles d'exercice physique:

5.1.3.1. Avant votre arrivée au Canada, quels exercices physiques faisiez-vous **chaque semaine**? *Cochez toutes les cases (une seule case ou plusieurs) qui s'appliquent ou écrivez votre réponse à la case « Autre » prévue pour cela si nécessaire.*

☐ **A.** Marche   ☐ **G.** Soccer   ☐ **M.** Natation

☐ **B.** Jogging / Course   ☐ **H.** Basket-ball   ☐ **N.** Yoga.

☐ **C.** Vélo   ☐ **I.** Hockey   ☐ **O.** TaiJiQuan/QiGong Chinois

☐ **D.** Randonnée pédestre   ☐ **J.** Tennis   ☐ **P.** Exercice du corps pour santé

☐ **E.** Ski   ☐ **K.** Tennis de table   ☐ **Q.** Autre (précisez): _____

☐ **F.** Patinage   ☐ **L.** Badminton   ☐ **R.** Aucun exercice

5.1.3.2. Depuis votre arrivée au Canada, quelles exercices physiques faites-vous **chaque semaine**? *Cochez toutes les cases (une seule case ou plusieurs) qui s'appliquent ou écrivez votre réponse à la case « Autre » prévue pour cela si nécessaire.*

☐ **A.** Marche   ☐ **G.** Soccer   ☐ **M.** Natation

☐ **B.** Jogging / Course   ☐ **H.** Basket-ball   ☐ **N.** Yoga.

☐ **C.** Vélo   ☐ **I.** Hockey   ☐ **O.** TaiJiQuan/QiGong Chinois

☐ **D.** Randonnée pédestre   ☐ **J.** Tennis   ☐ **P.** Exercice du corps pour santé

☐ **E.** Ski   ☐ **K.** Tennis de table   ☐ **Q.** Autre (précisez): _____

☐ **F.** Patinage   ☐ **L.** Badminton   ☐ **R.** Aucun exercice

5.2. Changement de croyance lié à l'exercice physique:
5.2.1. Avant votre arrivée au Canada, laquelle de ces affirmations décrit le mieux votre croyance en ce qui concerne l'exercice physique?

☐ **A.** Les exercices mentionnés ci-dessus peuvent **promouvoir extrêmement** la santé

☐ **B.** Les exercices mentionnés ci-dessus peuvent **promouvoir très bien** la santé

☐ **C.** Les exercices mentionnés ci-dessus peuvent **promouvoir** la santé

☐ **D.** Les exercices mentionnés ci-dessus peuvent **peu promouvoir** la santé

☐ **E.** Les exercices mentionnés ci-dessus peuvent **très peu de promouvoir** la santé

☐ **F.** Les exercices mentionnés ci-dessus **ne** peuvent **pas promouvoir** la santé

☐ **G.** Ne savez pas

5.2.2. Depuis votre arrivée au Canada, laquelle de ces affirmations décrit le mieux votre croyance en ce qui concerne l'exercice physique?

☐ **A.** Les exercices mentionnés ci-dessus peuvent **promouvoir extrêmement** la santé

☐ **B.** Les exercices mentionnés ci-dessus peuvent **promouvoir très bien** la santé

☐ **C.** Les exercices mentionnés ci-dessus peuvent **promouvoir** la santé

☐ **D.** Les exercices mentionnés ci-dessus peuvent **peu promouvoir** la santé

☐ **E.** Les exercices mentionnés ci-dessus peuvent **très peu de promouvoir** la santé

☐ **F.** Les exercices mentionnés ci-dessus **ne** peuvent **pas promouvoir** la santé

☐ **G.** Ne savez pas

Section 6: Changement lié à l'alimention

6. 1. Changement de comportement lié à l'alimentation
6.1.1. Changement de consommation des **aliments diététiques:**

Depuis votre arrivée au Canada, votre consommation des **aliments diététiques** (i.e. viande maigre, bœuf, poulet, poisson, oeuf, fruits frais et légumes frais, etc.) a-t-elle changé **chaque semaine**?

☐**A.** Oui a changé ↪ passez à la question **6.1.1.1.** et à la question **6.1.1.2.** ci-dessous ⬇

☐**B.** N'a pas changé

☐**C..** Ne savez pas

6.1.1.1. Depuis votre arrivée au Canada, la consommation de quels **aliments diététiques** avez-vous **augmentée chaque semaine**? *Merci de bien régléchir à chaque alternative avant de faire votre choix, cochez toutes les cases (une seule case ou plusieurs) qui s'appliquent ou précisez votre réponse à la case « Autre » prévue pour cela si nécessaire.*

Remarque:
Le mot «**augmentée**» dans la question posée réfère à l'augmentation d'aliments selon la catégorie et la quantité. Par exemple, si vous ne mangiez pas des oeufs avant votre arrivée au Canada, mais que vous mangez des œufs depuis votre arrivée au Canada, vous devez choisir « **f.** Oeuf »; si vous mangiez « 4 œufs » en moyenne chaque semaine avant votre arrivée au Canada, mais que vous mangez maintenant « 7 œufs » en moyenne chaque semaine depuis votre arrivée au Canada, vous devez également choisir « **f.** Oeuf ».

☐**a.** Viande maigre   ☐**h.** Lait de peu graisse   ☐**o.** Pomme de terre

☐**b.** Bœuf   ☐**i.** Yogourt   ☐**p.** Patate douce

☐**c.** Poulet   ☐**j.** Tofu   ☐**q.** Légumes frais

☐**d.** Poisson   ☐**k.** Riz   ☐**r.** Fruits frais

☐**e.** Crevette   ☐**l.** Pâtes   ☐**s.** Jus de fruits naturel

☐**f.** Oeuf   ☐**m.** Farine d'avoine   ☐**t.** Thé

☐**g.** Miel   ☐**n.** Maïs   ☐**u.** Autre (précisez):_____

6.1.1.2. Depuis votre arrivée au Canada, la consommation de quels **aliments diététiques** avez-vous **diminuée chaque semaine**? *Merci de bien réfléchir à chaque alternative avant de votre choix, cochez toutes les cases (une seule case ou plusieurs) qui s'appliquent ou précisez votre réponse à la case « Autre » prévue pour cela si nécessaire.*

Remarque:

Le mot «**diminuée**» dans la question posée réfère à la diminution d'aliments selon la catégorie et la quantité. Par exemple, si vous mangiez des oeufs avant votre arrivée au Canada, mais que vous ne mangez pas des œufs depuis votre arrivée au Canada, vous devez choisir « **f.** Oeuf »; si vous mangiez « 7 œufs » en moyenne chaque semaine avant votre arrivée au Canada, mais que vous mangez maintenant « 4 œufs » en moyenne chaque semaine depuis votre arrivée au Canada, vous devez également choisir « **f.** Oeuf ».

☐ **a.** Viande maigre   ☐ **h.** Lait de peu graisse   ☐ **o.** Pomme de terre

☐ **b.** Bœuf   ☐ **i.** Yogourt   ☐ **p.** Patate douce

☐ **c.** Poulet   ☐ **j.** Tofu   ☐ **q.** Légumes frais

☐ **d.** Poisson   ☐ **k.** Riz   ☐ **r.** Fruits frais

☐ **e.** Crevette   ☐ **l.** Pâtes   ☐ **s.** Jus de fruits naturel

☐ **f.** Oeuf   ☐ **m.** Farine d'avoine   ☐ **t.** Thé

☐ **g.** Miel   ☐ **n.** Maïs   ☐ **u.** Autre (précisez):_____

6.1.2. Changement de consommation des **malbouffes** et des **aliments industrialisés:** Depuis votre arrivée au Canada, votre consommation des **malbouffes** et des **aliments industrialisés** (i.e. viandes grasses, aliments frits, aliments en conserve, jus de fruits riches en sucre, etc.) a-t-elle changé **chaque semaine**?

☐ **A.** Oui a changé → passez à la question **6.1.2.1.** et à la question **6.1.2.2.** ci-dessous ⬇

☐ **B.** N'a pas changé.

☐ **C.** Ne savez pas

6.1.2.1. Depuis votre arrivée au Canada, la consommation de quels **malbouffes** et **aliments industrialisés** avez-vous **augmentée chaque semaine,** *cochez toutes les cases (une seule case ou plusieurs) qui s'appliquent ou précisez votre réponse à la case « Autre » prévue pour cela si nécessaire.*

Remarque:
Le mot «**augmentée**» dans la question posée réfère à l'augmentation d'aliments selon la catégorie et la quantité. Par exemple, si vous ne mangiez pas « viandes grasses » avant votre arrivée au Canada, mais que vous mangez des « viandes grasses » depuis votre arrivée au Canada, vous devez choisir « **a.**Viandes grasses »; si vous mangiez des « viandes grasses 4 fois » en moyenne chaque semaine avant votre arrivée au Canada, mais que vous mangez des « viandes grasses 7 fois » en moyenne

chaque semaine depuis votre arrivée au Canada, vous devez également choisir «**a.** Viandes grasses ».

☐ **a.** Viandes grasses   ☐ **h.** Gâteaux et desserts riches en sucre

☐ **b.** Aliments frits   ☐ **i.** Bonbons et tablettes de chocolat

☐ **c.** Légumes marinés   ☐ **j.** Eaux et boissons gazeuses

☐ **d.** Viandes salés   ☐ **k.** Jus de fruits riches en sucre

☐ **e.** Saucisse et viande séchée   ☐ **l.** Crème glacée et popsicle

☐ **f.** Croustilles, biscuits, nouilles instantanées   ☐ **m.** Café avec sucre

☐ **g.** Aliments en conserve   ☐ **n.** Autre (précisez): _____

6.1.2.2. Depuis votre arrivée au Canada, la consommation de quels **malbouffes** et **aliments industrialisés** avez-vous **diminuée chaque semaine**? *Merci de bien réfléchir à chaque alternative avant de votre choix, cochez toutes les cases (une seule case ou plusieurs) qui s'appliquent ou précisez votre réponse à la case « Autre » prévue pour cela si nécessaire.*

Remarque: Le mot «**diminuée**» dans la question posée réfère à la diminution d'aliments selon la catégorie et la quantité. Par exemple, si vous mangiez des « viandes grasses » avant votre arrivée au Canada, mais que vous ne mangez pas de « viandes grasses » depuis votre arrivée au Canada, vous devez choisir « **a.** Viandes grasses »; si vous mangiez des « viandes grasses 4 fois » en moyenne chaque semaine avant votre arrivée au Canada, mais que vous mangez des « viandes grasses 2 fois » en moyenne chaque semaine depuis votre arrivée au Canada, vous devez également choisir « **a.** Viandes grasses ».

☐ **a.** Viandes grasses   ☐ **h.** Gâteaux et desserts riches en sucre

☐ **b.** Aliments frits   ☐ **i.** Bonbons et tablettes de chocolat

☐ **c.** Légumes marinés   ☐ **j.** Eaux et boissons gazeuses

☐ **d.** Viandes salés   ☐ **k.** Jus de fruits riches en sucre

☐ **e.** Saucisse et viande séchée   ☐ **l.** Crème glacée et popsicle

☐ **f.** Croustilles, biscuits, nouilles instantanées   ☐ **m.** Café avec sucre

☐ **g.** Aliments en conserve   ☐ **n.** Autres (précisez): _____

6.2. Changement de croyance lié à l'alimentaire:

6.2.1. Avant votre arrivée au Canada, laquelle de ces affirmations décrit le mieux votre croyance en ce qui concerne l'**aliment diététique**?

☐**A.** Les aliments diététiques mentionnés ci-dessus peuvent **promouvoir extrêmement** la santé

☐**B.** Les aliments diététiques mentionnés ci-dessus peuvent **promouvoir très bien** la santé

☐**C.** Les aliments diététiques mentionnés ci-dessus peuvent **promouvoir** la santé

☐**D.** Les aliments diététiques mentionnés ci-dessus peuvent **peu de promouvoir** la santé

☐**E.** Les aliments diététiques mentionnés ci-dessus peuvent **très peu de promouvoir** la santé

☐**F.** Les aliments diététiques mentionnés ci-dessus **ne** peuvent **pas promouvoir** la santé

☐**G.** Ne savez pas

6.2.2. Depuis votre arrivée au Canada, laquelle de ces affirmations le mieux votre croyance en ce qui concerne l'**aliment diététique**?

☐**A.** Les aliments diététiques mentionnés ci-dessus peuvent **promouvoir extrêmement** la santé

☐**B.** Les aliments diététiques mentionnés ci-dessus peuvent **promouvoir très bien** la santé

☐**C.** Les aliments diététiques mentionnés ci-dessus peuvent **promouvoir** la santé

☐**D.** Les aliments diététiques mentionnés ci-dessus peuvent **peu de promouvoir** la santé

☐**E.** Les aliments diététiques mentionnés ci-dessus peuvent **très peu de promouvoir** la santé

☐**F.** Les aliments diététiques mentionnés ci-dessus **ne** peuvent **pas promouvoir** la santé

☐**G.** Ne savez pas

6.2.3. Avant votre arrivée au Canada, laquelle de ces affirmations décrit le mieux votre croyance en ce qui concerne la **malbouffe** et l'**aliment industrialisé**?

☐**A.** Les malbouffes et les aliments industrialisés mentionnés ci-dessus ont des **effets négatifs extrêmes** sur la santé

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☐**B.** Les malbouffes et les aliments industrialisés mentionnés ci-dessus ont des **effets très négatifs** sur la santé

☐**C.** Les malbouffes et les aliments industrialisés mentionnés ci-dessus ont des **effets négatifs** sur la santé

☐**D.** Les malbouffes et les aliments industrialisés mentionnés ci-dessus ont **peu d'effets négatifs** sur la santé

☐**E.** Les malbouffes et les aliments industrialisés mentionnés ci-dessus ont **très peu d'effets négatifs** sur la santé

☐**F.** Les malbouffes et les aliments industrialisés mentionnés ci-dessus **n'ont pas d'effets négatifs** sur la santé

☐**G.** Ne savez pas

6.2.4. Depuis votre arrivée au Canada, laquelle de ces affirmations le mieux votre croyance en ce qui concerne la **malbouffe et** l'**aliment industrialisé**?

☐**A.** Les malbouffes et les aliments industrialisés mentionnés ci-dessus ont des **effets négatifs extrêmes** sur la santé

☐**B.** Les malbouffes et les aliments industrialisés mentionnés ci-dessus ont des **effets très négatifs** sur la santé

☐**C.** Les malbouffes et les aliments industrialisés mentionnés ci-dessus ont des **effets négatifs** sur la santé

☐**D.** Les malbouffes et les aliments industrialisés mentionnés ci-dessus ont **peu d'effets négatifs** sur la santé

☐**E.** Les malbouffes et les aliments industrialisés mentionnés ci-dessus ont **très peu d'effets négatifs** sur la santé

☐**F.** Les malbouffes et les aliments industrialisés mentionnés ci-dessus **n'ont pas d'effets négatifs** sur la santé

☐**G.** Ne savez pas

Section 7: Changement lié à l'état de santé

7.1. Avant votre arrivée au Canada, comment estimiez-vous votre état de santé général?

☐**A.** Excellent

☐**B.** Très bon

☐**C.** Bon

☐ **D.** Moyen (ni bon ni mauvais)

☐ **E.** Mauvais

☐ **F.** Très mauvais

☐ **G.** Extrêmement mauvais

☐ **H.** Ne savez pas

7.2. Depuis votre arrivée au Canada, comment estimez-vous votre état de santé général?

☐ **A.** Excellent

☐ **B.** Très bon

☐ **C.** Bon

☐ **D.** Moyen (ni bon ni mauvais)

☐ **E.** Mauvais

☐ **F.** Très mauvais

☐ **G.** Extrêmement mauvais

☐ **H.** Ne savez pas

Section 8: Questions démographiques

8.1. Quelle est votre langue maternelle?

☐ **A.** Anglais

☐ **B.** Français

☐ **C.** Chinois

8.2. Quelle (s) langue (s) pouvez-vous parler? *__Cochez toutes les cases (une seule case ou plusieurs) qui s'appliquent ou écrivez votre réponse dans la case prévue__* **pour cela si nécessaire.**

☐ **A.** Anglais   ☐ **C.** Chinois

☐ **B.** Français   ☐ **D.** Autre (précisez): _____

8.3. Quel est votre pays d`origine? _____

8.4. À quel groupe d'âge correspondez-vous?

☐ **A.** 18 à 24 ans

☐ **B.** 25 à 34 ans

☐ **C.** 35 à 44 ans

☐ **D.** 45 à 54 ans

☐ **E.** 55 à 64 ans

☐ **F.** 65 à 74 ans

☐ **G.** 75 à 84 ans

☐ **H.** 85 ans ou plus

8.5. Quel est votre genre?

☐ **A.** Homme

☐ **B.** Femme

8.6. Quelle est présentement votre situation familiale?

☐ **A.** Marié

☐ **B.** Cohabitant

☐ **C.** Divorcé

☐ **D.** Veuve / Veuf

☐ **E.** Séparé

☐ **F.** Célibataire (jamais marié)

☐ **G.** Ne préfèrez pas la dire

8.7. Quelle est votre catégorie d'immigration?

☐ **A.** **Immigrant** qualifié ou **immigrant** d'affaires dans la **catégorie de demandeur principal** ou **unique**

☐ **B.** **Immigrant** qualifié ou **immigrant** d'affaires dans la catégorie **conjoint et dépendant du demandeur principal** (**épouse du demandeur principal** ou **époux de demanderesse principale**) ou (**enfant du demandeur principal** ou **de la demanderesse principale**)

☐ **C.** **Immigrant** dans la **catégorie familiale** (immigrant d'une famille qui a déjà immigré au Canada pour se marier avec un citoyen canadien ou un résident permanent, ou immigrant d'une famille parrainée par un proche parent ou un membre de la famille qui est un citoyen canadien ou un résident permanent)

☐ **D.** Autre

8.8. Depuis combien de temps vivez-vous au Canada?

☐ **A.** Un an ou près de un an

☐ **B.** 2 à 5 ans

☐ **C.** 6 à 10 ans

☐ **D.** 11 à 20 ans

☐ **E.** 21 ans ou plus

8.9. Quel est votre plus haut niveau de scolarité?

☐ **A.** Aucune scolarité

☐ **B.** École primaire

☐ **C.** École secondaire

☐ **D.** Formation professionnelle

☐ **E.** Collège

☐ **F.** Université

☐ **G.** Postuniversitaire

8.10. Quel est votre statut d'emploi actuel?

☐ **A.** Employé à temps plein (35 heures ou plus par semaine)

☐ **B.** Employé à temps partiel (moins de 35 heures par semaine)

☐ **C.** Employeur ou travailleur autonome

☐ **D.** Retraité

☐ **E.** Travail non-rémunéré

☐ **F.** Chômeur

8.11. Quel est votre profession principale actuelle?

☐ **A.** Gestionnaire ou administrateur

☐ **B.** Professionnel (au sein du gouvernement, de la législation, de la science, de l'ingénierie, de l'éducation, de la santé, de l'entreprise, les affaires, le commerce, le transport, le service, le sport, etc.)

☐ **C.** Ouvrier ou agriculteur

☐ **D.** Étudiant

☐ **E.** Bénévole

☐ **F.** Autre (précisez) : _____

☐ **G.** Aucune profession

8.12. Quelle est votre religion actuelle?

☐ **A.** Bouddhisme

☐ **B.** Christianisme

☐ **C.** Islame

☐ **D.** Judaisme

☐ **E.** Autres (précisez) : _____

☐ **F.** Aucune religion

8.13. Combien a été votre revenu brut personnel (revenu avant déductions fiscales) l'année passée?

☐ **A.** Moins de 30,000 $

☐ **B.** 30,000 $ à 49,999 $

☐ **C.** 50,000 $ à 69,999 $

☐ **D.** 70,000 $ à 99,999 $

☐ **E.** 100,000 $ ou plus

☐ **F.** Ne savez pas

Merci de réviser attentivement vos réponses!

Merci d'avoir pris le temps de remplir ce questionnaire! Avant de nous le retourner, nous vous prions de vérifier que vos réponses necomportent pas d'erreurs. Votre perspicacité et vos informations sont très précieuses pour nous qui menons une recherche multiculturelle en santé afin que les résultats puissent éclairer plus tard les décisions prises dans ce domaine par le gouvernement canadien. Nous utiliserons aussi vos commentaires afin d'améliorer les futures recherches dans ce domaine.

Utilisez l'espace ci-dessous pour fournir des commentaires supplémentaires sur la façon dont nous pourrions améliorer notre travail, s'il vous plaît. Si vous avez des questions ou des préoccupations au sujet de ce sondage, contactez Ning Tang par courriel: tang0139@flinders.edu.au ou par téléphone: (819) 420-1691 ou le téléphone cellulaire: 819-708-3099. Merci beaucoup!

L'**alimentation saine!**   **La vie saine!**

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多元文化的生活方式改变问卷

多元文化的加拿大

1．介绍

感谢你参与在加拿大渥太华和加蒂诺市的这项调查。这是一项英文，法文或中文移民生活方式改变的多元文化调查。这项调查将需要大约 20-30 分钟。请不要把你的名字，联系方式写在任何一页上；这份问卷是严格匿名的：没有任何回答者能够被识别。我们非常感谢你能真实地回答这些问题，并也能尊重其他人的隐私。

完成这一问卷一次后，你将获得 20 加元。

请读在下一页首端的回答问卷说明。没有不正确或错误的答案！

我们鼓励你回答所有的问题。当你认为没有任何适合的答案时，选择最接近的答案。你可以随时寻求主要研究者的帮助。完成这一问卷后，你可以要求获得最后研究报告的概要。非常感谢你！

2．联系信息

唐宁（主要研究者），电子邮箱：tang0139@flinders.edu.au ，电话：819-420-1691，手机：819-708-3099，地址：21-76 rue Richard, Gatineau, Québec J8Y 4Z2, Canada，澳大利亚弗林德斯大学医学分校公共卫生系公共卫生学博士生。唐宁的主要导师：澳大利亚弗林德斯大学医学分校科林·麦克杜格尔副教授（电子邮箱：colin.macdougall@flinders.edu.au ，电话：+61 08 7221 8412）。

3．递交信息

请将本问卷交回给主要研究者：唐宁。

回答指导：

对每一个问题，用一支黑色铅笔标记你的答案。**在每题的答案选择框中只标记一个框，除非在一些问题中的特别回答指导告诉你标记所有适合的框（一个或多个框）。**

适当的标记： |X|

第一部分：吸烟改变

1.1. 吸烟行为改变：

1.1.1. 下列哪项最能描述你？

☐ **A.** 你从不吸烟

☐ **B.** 你在抵达加拿大前吸烟，但抵达后戒烟

☐ **C.** 你在抵达加拿大前不吸烟，但抵达后开始吸烟

☐ **D.** 如果你在抵达加拿大前和抵达以来都吸烟 ➡ 请到下面的问题 **1.1.1.1.**和问题 **1.1.1.2.** ⬇

    1.1.1.1. 在抵达加拿大前的**最后一年中**，你平均**每天**抽多少支香烟？

    ☐ **a.** 1－10 支（少于一包）

    ☐ **b.** 11－20 支（一包）

    ☐ **c.** 21－40 支（两包）

    ☐ **d.** 41支 或 以上（超过两包）

    ☐ **e.** 不知道

    1.1.1.2.**过去的一年中**在加拿大，你平均**每天**抽多少支香烟？

    ☐ **a.** 1－10 支（少于一包）

    ☐ **b.** 11－20 支（一包）

    ☐ **c.** 21－40 支（两包）

    ☐ **d.** 41支 或 以上（超过两包）

    ☐ **e.** 不知道

1. 2. 吸烟理念改变：

1.2.1. 在抵达加拿大之前，下列陈述中的哪项最能描述你的吸烟理念？

☐ **A.** 吸烟对健康**极其有害**

☐ **B.** 吸烟对健康**非常有害**

☐ **C.** 吸烟对健康**有害**

☐ **D.** 吸烟对健康**轻微有害**

☐ **E.** 吸烟对健康**非常轻微有害**

☐ **F.** 吸烟对健康**无害**

☐ **G.** 不知道

1.2.2. 自从抵达加拿大以来，下列陈述中的哪项最能描述你的吸烟理念？

☐ **A.** 吸烟对健康**极其有害**

☐ **B.** 吸烟对健康**非常有害**

☐ **C.** 吸烟对健康**有害**

☐ **D.** 吸烟对健康**轻微有害**

☐ **E.** 吸烟对健康**非常轻微有害**

☐ **F.** 吸烟对健康**无害**

☐ **G.** 不知道

第二部分：饮用酒消耗改变

2.1. 酒精消耗行为改变：

2.1.1. 下列哪项最能描述你？

☐ **A.** 你从不饮酒（包括任何含酒精的饮料）

☐ **B.** 你在抵达加拿大前饮酒，但抵达后戒酒

☐ **C.** 你在抵达加拿大前不饮酒，但抵达后开始饮酒

☐ **D.** 如果你在抵达加拿大前和抵达以来都饮酒 ➡ 请到下面的问题 **2.1.1.1**.和问题 **2.1.1.2.** ⬇

　　2.1.1.1. 在抵达加拿大前的**最后一年中**，你平均**每天**饮多少酒(啤酒，白酒)？

　　☐ **a.** 少于或等于0.5瓶啤酒，或少于或等于1杯白酒

　　☐ **b.** 1 – 2瓶啤酒，或2 – 3杯白酒

☐**c.** 2 – 3瓶啤酒，或4 – 6杯白酒

☐**d.** 4瓶啤酒或以上，或7 – 8杯白酒或以上

☐**e.** 不知道

2.1.1.2. **过去的一年中**在加拿大，你平均**每天**饮多少酒(啤酒，白酒)？

☐**a.** 少于或等于0.5瓶啤酒，或少于或等于1杯白酒

☐**b.** 1 – 2瓶啤酒，或2 – 3杯白酒

☐**c.** 2 – 3瓶啤酒，或4 – 6杯白酒

☐**d.** 4瓶啤酒或以上，或7 – 8杯白酒或以上

☐**e.** 不知道

2.2. 酒精消耗理念改变：

2.2.1. 在抵达加拿大之前，下列陈述中的哪项最能描述你的饮酒理念？

☐**A.** 过量饮酒对健康**极其有害**

☐**B.** 过量饮酒对健康**非常有害**

☐**C.** 过量饮酒对健康**有害**

☐**D.** 过量饮酒对健康**轻微有害**

☐**E.** 过量饮酒对健康**非常轻微有害**

☐**F.** 过量饮酒对健康**无害**

☐**G.** 不知道

2.2.1. 自从抵达加拿大以来，下列陈述中的哪项最能描述你的饮酒理念？

☐**A.** 过量饮酒对健康**极其有害**

☐**B.** 过量饮酒对健康**非常有害**

☐**C.** 过量饮酒对健康**有害**

☐**D.** 过量饮酒对健康**轻微有害**

☐**E.** 过量饮酒对健康**非常轻微有害**

☐**F.** 过量饮酒对健康**无害**

☐**G.** 不知道

第三部分：情绪改变

3.1. 情绪状态改变：

3.1.1. 在抵达加拿大之前，你怎样描述你总体的情绪状态？

☐ **A.** 非常轻松

☐ **B.** 轻松

☐ **C.** 较轻松

☐ **D.** 中等（既不轻松也不焦虑）

☐ **E.** 较焦虑

☐ **F.** 焦虑

☐ **G.** 非常焦虑

☐ **H.** 不知道

3.1.2. 自从抵达加拿大以来，你怎样描述你总体的情绪状态？

☐ **A.** 非常轻松

☐ **B.** 轻松

☐ **C.** 较轻松

☐ **D.** 中等（既不轻松也不焦虑）

☐ **E.** 较焦虑

☐ **F.** 焦虑

☐ **G.** 非常焦虑

☐ **H.** 不知道

3.2. 情绪理念改变：

3.2.1. 在抵达加拿大之前，下列陈述中的哪项最能描述你的焦虑理念？

☐ **A.** 焦虑对健康**有极其强烈的负面影响**

☐ **B.** 焦虑对健康**有强烈的负面影响**

☐ **C.** 焦虑对健康**有负面影响**

☐ **D.** 焦虑对健康**有轻微的负面影响**

☐ **E.** 焦虑对健康**有非常轻微的负面影响**

☐**F.** 焦虑对健康**<u>没有负面影响</u>**

☐**G.** 不知道

3.2.2. 自从抵达加拿大以来，下列陈述中的哪项最能描述你的焦虑理念？

☐**A.** 焦虑对健康**<u>有极其强烈的负面影响</u>**

☐**B.** 焦虑对健康**<u>有强烈的负面影响</u>**

☐**C.** 焦虑对健康**<u>有负面影响</u>**

☐**D.** 焦虑对健康**<u>有轻微的负面影响</u>**

☐**E.** 焦虑对健康**<u>有非常轻微的负面影响</u>**

☐**F.** 焦虑对健康**<u>没有负面影响</u>**

☐**G.** 不知道

第四部分：睡眠改变

4.1. 睡眠行为改变：
4.1.1. 睡眠时间改变：
4.1.1.1. 在抵达加拿大之前，你平均**每天**睡多少小时？

☐**A.** 少于或等于6小时

☐**B.** 7 - 8小时

☐**C.** 9小时

☐**D.** 10小时或以上

☐**E.** 不知道

4.1.1.2. 自从抵达加拿大以来，你平均**每天**睡多少小时？

☐**A.** 少于或等于6小时

☐**B.** 7 - 8小时

☐**C.** 9小时

☐**D.** 10小时或以上

☐**E.** 不知道

4.1.2. 睡眠质量改变：

4.1.2.1. 在抵达加拿大之前，你**每天**的睡眠质量怎样？

☐**A.** 极好

☐**B.** 很好

☐**C.** 好

☐**D.** 一般（既不好也不差）

☐**E.** 差

☐**F.** 很差

☐**G.** 极差

☐**H.** 不知道

4.1.2.2. 自从抵达加拿大以来，你**每天**的睡眠质量怎样？

☐**A.** 极好

☐**B.** 很好

☐**C.** 好

☐**D.** 一般（既不好也不差）

☐**E.** 差

☐**F.** 很差

☐**G.** 极差

☐**H.** 不知道

4.2. **睡眠理念改变：**
4.2.1. 在抵达加拿大之前，下列陈述中的哪项最能描述你的睡眠理念？

☐**A.** 每天至少7-8个小时高质量的睡眠**极其有助于**健康

☐**B.** 每天至少 7-8 个小时高质量的睡眠**非常有助于**健康

☐**C.** 每天至少 7-8 个小时高质量的睡眠**有助于**健康

☐**D.** 每天至少 7-8 个小时高质量的睡眠**轻微有助于**健康

☐**E.** 每天至少 7-8 个小时高质量的睡眠**非常轻微有助于**健康

☐**F.** 每天至少 7-8 个小时高质量的睡眠**不助于**健康

☐**G.** 不知道

4.2.2．自从抵达加拿大以来，下列陈述中的哪项最能描述你的睡眠理念？

☐**A.** 每天至少7-8个小时高质量的睡眠**<u>极其有助于</u>**健康

☐**B.** 每天至少 7-8 个小时高质量的睡眠**<u>非常有助于</u>**健康

☐**C.** 每天至少 7-8 个小时高质量的睡眠**<u>有助于</u>**健康

☐**D.** 每天至少 7-8 个小时高质量的睡眠**<u>轻微有助于</u>**健康

☐**E.** 每天至少 7-8 个小时高质量的睡眠**<u>非常轻微有助于</u>**健康

☐**F.** 每天至少 7-8 个小时高质量的睡眠**<u>不助于</u>**健康

☐**G.** 不知道

第五部分：身体活动改变

5.1. 身体活动行为改变：
5.1.1．身体锻练时间改变：
5.1.1.1. 在抵达加拿大之前，你平均**<u>每周</u>**进行多长时间的身体锻练？

☐**A.** 少于或等于1小时

☐**B.** 2 － 3小时

☐**C.** 4 － 5小时

☐**D.** 6 － 7小时

☐**E.** 8小时或以上

☐**F.** 不知道

5.1.1.2. 自从抵达加拿大以来，你平均**<u>每周</u>**进行多长时间的身体锻练？

☐**A.** 少于或等于1小时

☐**B.** 2 － 3小时

☐**C.** 4 － 5小时

☐**D.** 6 － 7小时

☐**E.** 8小时或以上

☐**F.** 不知道

5.1.2．身体活动水平改变：
5.1.2.1. 在抵达加拿大之前，下列描述中的哪项最能代表你**<u>一天</u>**的身体活动水

平？

☐**A. 很轻**（一天在工作或家中总是坐着，有非常少的走动和做很少一点家务）

☐**B. 轻**（一天在工作或家中经常坐着，有时站立，有少量的走动和做少量的家务）

☐**C. 中度**（一天在工作或家中有时坐着或站立，有时走动，有一到两小时的活动， 如操作机器和重设备，园艺，做家务，保龄球，打高尔夫球等）

☐**D. 中重度**（一天在工作或家中经常站立，经常走动，有中度到剧烈的活动，如徒步旅行，瑜珈，中国太极拳，健身运动等）

☐**E. 重度**（一天在工作或家中总是站立，频繁走动，在工作或闲暇时间有高水平的剧烈活动，如跑步，踢足球，游泳，滑雪等）

☐**F.** 不知道

5.1.2.2. 自从抵达加拿大以来，下列描述中的哪项最能代表你**一天**的身体活动水平？

☐**A. 很轻**（一天在工作或家中总是坐着，有非常少的走动和做很少一点家务）

☐**B. 轻**（一天在工作或家中经常坐着，有时站立，有少量的走动和做少量的家务）

☐**C. 中度**（一天在工作或家中有时坐着或站立，有时走动，有一到两小时的活动， 如操作机器和重设备，园艺，做家务，保龄球，打高尔夫球等）

☐**D. 中重度**（一天在工作或家中经常站立，经常走动，但有中度到剧烈的活动，如徒步旅行，瑜珈，中国太极拳，健身运动等）

☐**E. 重度**（一天在工作或家中总是站立，频繁走动，在工作或闲暇时间有高水平的剧烈活动，如跑步，踢足球，游泳，滑雪等）

☐**F.** 不知道

5.1.3. 身体锻练项目改变：
5.1.3.1. 在抵达加拿大之前，你**每周**进行哪些形式的身体锻练？*请在下列答案选择框中标记所有适合的框（一个或多个框）或在所提供的空白处"其它"写下你的答案。*

☐A. 步行	☐G. 足球	☐M. 游泳
☐B. 慢跑或跑步	☐H. 篮球	☐N. 瑜珈
☐C. 自行车	☐I. 曲棍球	☐O. 中国太极拳或气功
☐D. 徒步旅行	☐J. 网球	☐P. 健身运动

☐E. 滑雪　　☐K. 乒乓球　　☐Q. 其它（请注明）：_____

☐F. 滑冰　　☐L. 羽毛球　　☐R. 未锻练

5.1.3.2. 自从抵达加拿大以来，你**每周**进行哪些形式的身体锻练？*请在下列答案选择框中标记所有适合的框（一个或多个框）或在所提供的空白处"其它"写下你的答案。*

☐A. 步行　　　　☐G. 足球　　　☐M. 游泳

☐B. 慢跑或跑步　☐H. 篮球　　　☐N. 瑜珈

☐C. 自行车　　　☐I. 曲棍球　　☐O. 中国太极拳或气功

☐D. 徒步旅行　　☐J. 网球　　　☐P. 健身运动

☐E. 滑雪　　　　☐K. 乒乓球　　☐Q. 其它（请注明）：_____

☐F. 滑冰　　　　☐L. 羽毛球　　☐R. 未锻练

5.2. 身体锻练理念改变：

5.2.1. 在抵达加拿大之前，下列陈述中的哪项最能描述你的身体锻练理念？

☐**A.** 上述锻练能**非常强烈地促进**健康

☐**B.** 上述锻练能**强烈地促进**健康

☐**C.** 上述锻练能**促进**健康

☐**D.** 上述锻练能**轻微地促进**健康

☐**E.** 上述锻练能**非常轻微地促进**健康

☐**F.** 上述锻练**不能促进**健康

☐**G.** 不知道

5.2.2. 自从抵达加拿大以来，下列陈述中的哪项最能描述你的身体锻练理念？

☐**A.** 上述锻练能**非常强烈地促进**健康

☐**B.** 上述锻练能**强烈地促进**健康

☐**C.** 上述锻练能**促进**健康

☐**D.** 上述锻练能**轻微地促进**健康

☐**E.** 上述锻练能**非常轻微地促进**健康

☐**F.** 上述锻练**不能促进**健康

☐**G.** 不知道

第六部分：饮食改变

6.1. 饮食行为改变：

6.1.1. 营养食品消耗改变：

自从抵达加拿大以来，你**每周**的**营养食品**（如：瘦肉，牛肉，鸡，鱼，蛋，新鲜水果和新鲜蔬菜等）消耗改变了吗？

☐ **A.** 改变 ➝ 请到下面的问题 **6.1.1.1.**和问题 **6.1.1.2.** ↓

☐ **B.** 未改变

☐ **C.** 不知道

6.1.1.1. 自从抵达加拿大以来，你**每周增加**了哪些**营养食品**的消耗？*请在下列答案选择框中标记所有适合的框（一个或多个框）或在所提供的空白处"其它"写下你的答案。*

注：

在这一问题中，"**增加**"这个词指的是这一食品的种类及数量的增加。例如，如果你在抵达加拿大之前不吃"鸡蛋"，但你在抵达加拿大以来吃"鸡蛋"，你应该选择"**f.** 蛋"；如果你在抵达加拿大之前平均每周吃"4个鸡蛋"，但你在抵达加拿大以来平均每周吃"7个鸡蛋"，你也应该选择"**f.** 蛋"。

☐ **a.** 瘦肉	☐ **h.** 低脂牛奶	☐ **o.** 马铃薯
☐ **b.** 牛肉	☐ **i.** 酸奶	☐ **p.** 红薯
☐ **c.** 鸡	☐ **j.** 豆腐	☐ **q.** 新鲜蔬菜
☐ **d.** 鱼	☐ **k.** 米饭	☐ **r.** 新鲜水果
☐ **e.** 虾	☐ **l.** 面食	☐ **s.** 天然果汁
☐ **f.** 蛋	☐ **m.** 燕麦片	☐ **t.** 茶
☐ **g.** 蜂蜜	☐ **n.** 玉米	☐ **u.** 其它（请注明）：_____

6.1.1.2. 自从抵达加拿大以来，你**每周减少**了哪些**营养食品**的消耗？*请在下列答案选择框中标记所有适合的框（一个或多个框）或在所提供的空白处"其它"写下你的答案。*

注：

在这一问题中，"**减少**"这个词指的是这一食品的种类及数量的减少。例如，如果你在抵达加拿大之前吃"鸡蛋"，但你在抵达加拿大以来不吃"鸡蛋"，你应该选择"**f.** 蛋"；如果你在抵达加拿大之前平均每周吃"4个鸡蛋"，但你在抵达加拿大以来平均每周吃"2个鸡蛋"，你也应该选择"**f.** 蛋"。

□ **a.** 瘦肉　　　　□ **h.** 低脂牛奶　　　□ **o.** 马铃薯

□ **b.** 牛肉　　　　□ **i.** 酸奶　　　　　□ **p.** 红薯

□ **c.** 鸡　　　　　□ **j.** 豆腐　　　　　□ **q.** 新鲜蔬菜

□ **d.** 鱼　　　　　□ **k.** 米饭　　　　　□ **r.** 新鲜水果

□ **e.** 虾　　　　　□ **l.** 面食　　　　　□ **s.** 天然果汁

□ **f.** 蛋　　　　　□ **m.** 燕麦片　　　　□ **t.** 茶

□ **g.** 蜂蜜　　　　□ **n.** 玉米　　　　　□ **u.** 其它（请注明）：_____

6.1.2. **垃圾和加工食品**消耗改变：

自从抵达加拿大以来，你**每周**的**垃圾和加工食品**（如：肥肉，油炸食品，罐头食品，高糖果汁等）消耗改变了吗？

□ **A.** 改变 → 请到下面的问题 6.1.2.1. 和问题 6.1.2.2. ⬇

□ **B.** 未改变

□ **C.** 不知道

6.1.2.1. 自从抵达加拿大以来，你**每周增加**了哪些**垃圾和加工食品**的消耗？*请在下列答案选择框中标记所有适合的框（一个或多个框）或在所提供的空白处"其它"写下你的答案。*

注：

在这一问题中，"**增加**"这个词指的是这一食品的种类及数量的增加。例如，如果你在抵达加拿大之前不吃"肥肉"，但你在抵达加拿大以来吃"肥肉"，你应该选择"**a.** 肥肉"；如果你在抵达加拿大之前平均每周吃"4次肥肉"，但你在抵达加拿大以来平均每周吃"7次肥肉"，你也应该选择"**a.** 肥肉"。

□ **a.** 肥肉　　　　　　□ **h.** 高糖蛋糕和点心

□ **b.** 油炸食品　　　　□ **i.** 糖果和巧克力

□ **c.** 腌制的蔬菜　　　□ **j.** 汽水和可乐

☐ **d.** 盐制的肉　　　　　　　☐ **k.** 高糖果汁

☐ **e.** 香肠和肉干　　　　　　☐ **l.** 冰淇淋和冰棒

☐ **f.** 炸薯条，饼干，方便面　☐ **m.** 加糖咖啡

☐ **g.** 罐头食品　　　　　　　☐ **n.** 其它（请注明）：＿＿＿＿＿＿

6.1.2.2. 自从抵达加拿大以来，你**每周减少**了哪些**垃圾和加工食品**的消耗？*请在下列答案选择框中标记所有适合的框（一个或多个框）或在所提供的空白处"其它"写下你的答案。*

注：

在这一问题中，"**减少**"这个词指的是这一食品的种类及数量的减少。例如，如果你在抵达加拿大之前吃"肥肉"，但你在抵达加拿大以来不吃"肥肉"，你应该选择"**a.** 肥肉"；如果你在抵达加拿大之前平均每周吃"4次肥肉"，但你在抵达加拿大以来平均每周吃"2次肥肉"，你也应该选择"**a.** 肥肉"。

☐ **a.** 肥肉　　　　　　　　　☐ **h.** 高糖蛋糕和点心。

☐ **b.** 油炸食品　　　　　　　☐ **i.** 糖果和巧克力

☐ **c.** 腌制的蔬菜　　　　　　☐ **j.** 汽水和可乐

☐ **d.** 盐制的肉　　　　　　　☐ **k.** 高糖果汁

☐ **e.** 香肠和肉干　　　　　　☐ **l.** 冰淇淋和冰棒

☐ **f.** 炸薯条，饼干，方便面　☐ **m.** 加糖咖啡

☐ **g.** 罐头食品　　　　　　　☐ **n.** 其它（请注明）：＿＿＿＿＿＿

6.2. 饮食理念改变：

6.2.1. 在抵达加拿大之前，下列陈述中的哪项最能描述你的**营养食品**理念？

☐**A.** 上述这些营养食品食品能**非常强烈地促进**健康

☐**B.** 上述这些营养食品食品能**强烈地促进**健康

☐**C.** 上述这些营养食品食品能**促进**健康

☐**D.** 上述这些营养食品食品能**轻微地促进**健康

☐**E.** 上述这些营养食品食品能**非常轻微地促进**健康

☐**F.** 上述这些营养食品食品**不能促进**健康

☐**G.** 不知道

6.2.2. 自从抵达加拿大以来，下列陈述中的哪项最能描述你的**营养食品**理念？

☐**A.** 上述这些营养食品食品能**非常强烈地促进**健康

☐**B.** 上述这些营养食品食品能**强烈地促进**健康

☐**C.** 上述这些营养食品食品能**促进**健康

☐**D.** 上述这些营养食品食品能**轻微地促进**健康

☐**E.** 上述这些营养食品食品能**非常轻微地促进**健康

☐**F.** 上述这些营养食品食品**不能促进**健康

☐**G.** 不知道

6.2.3. 在抵达加拿大之前，下列陈述中的哪项最能描述你的**垃圾和加工食品**理念？

☐**A.** 上述这些垃圾和加工食品对健康**有非常强烈的不利影响**

☐**B.** 上述这些垃圾和加工食品对健康**有强烈的不利影响**

☐**C.** 上述这些垃圾和加工食品对健康**有不利影响**

☐**D.** 上述这些垃圾和加工食品对健康**有轻微的不利影响**

☐**E.** 上述这些垃圾和加工食品对健康**有非常轻微的不利影响**

☐**F.** 上述这些垃圾和加工食品对健康**没有不利影响**

☐**G.** 不知道

6.2.4. 自从抵达加拿大以来，下列陈述中的哪项最能描述你的**垃圾和加工食品**理念？

☐**A.** 上述这些垃圾和加工食品对健康**有非常强烈的不利影响**

☐**B.** 上述这些垃圾和加工食品对健康**有强烈的不利影响**

☐**C.** 上述这些垃圾和加工食品对健康**有不利影响**

☐**D.** 上述这些垃圾和加工食品对健康**有轻微的不利影响**

☐**E.** 上述这些垃圾和加工食品对健康**有非常轻微的不利影响**

☐**F.** 上述这些垃圾和加工食品对健康**没有不利影响**

☐**G.** 不知道

第七部分：健康状况改变

7.1. 健康状况改变：

7.1.1. 在抵达加拿大之前，你怎样估计你总体的健康状况？

☐ **A.** 极好

☐ **B.** 很好

☐ **C.** 好

☐ **D.** 一般（既不好也不差）

☐ **E.** 差

☐ **F.** 很差

☐ **G.** 极差

☐ **H.** 不知道

7.1.2. 自从抵达加拿大以来，你怎样估计你总体的健康状况？

☐ **A.** 极好

☐ **B.** 很好

☐ **C.** 好

☐ **D.** 一般（既不好也不差）

☐ **E.** 差

☐ **F.** 很差

☐ **G.** 极差

☐ **H.** 不知道

第八部分：人口统计的问题

8.1. 你的母语是哪种语言？

☐ **A.** 英文

☐ **B.** 法文

☐ **C.** 中文

8.2. 你能说什么语言？*请在下列答案选择框中标记所有适合的框（一个或多个框）或在所提供的空白处写下你的答案*

☐ **A.** 英文   ☐ **C.** 中文

☐ **B.** 法文   ☐ **D.** 其它（请注明）：＿＿＿＿＿＿＿＿＿＿

8.3. 你原籍哪个国家？＿＿＿＿＿＿＿＿＿＿

8.4. 你在哪个年龄组？

☐ **A.** 18 – 24岁

☐ **B.** 25 – 34岁

☐ **C.** 35 – 44岁

☐ **D.** 45 – 54岁

☐ **E.** 55 – 64岁

☐ **F.** 65 – 74岁

☐ **G.** 75 – 84岁

☐ **H.** 85岁或以上

8.5. 你的性别是什么？

☐ **A.** 男

☐ **B.** 女

8.6. 你目前的婚姻状况是什么？

☐ **A.** 已婚

☐ **B.** 同居

☐ **C.** 离婚

☐ **D.** 寡妇或鳏夫

☐ **E.** 分居

☐ **F.** 单身（从未结婚）

☐ **G.** 不愿告知

8.7. 你的移民类别是什么？

☐ **A.** 主申请人类的或单个申请者类的技术或商业移民

☐ **B.** 配偶或供养类的技术或商业移民（主申请人的配偶或子女）

☐ **C.** 家庭团聚类移民（通过与加拿大公民或永久性居民结婚而移民的家庭移民，或由亲属或家庭成员担保的家庭移民，这个亲属或家庭成员是加拿大公民或永久性居民）

☐ **D.** 其它类

8.8. 你已生活在加拿大多久？

☐ **A.** 1年或近1年

☐ **B.** 2 – 5年

☐ **C.** 6 – 10年

☐ **D.** 11 – 20年

☐ **E.** 21年或以上

8.9. 你的最高教育水平是什么？

☐ **A.** 未受教育

☐ **B.** 小学教育

☐ **C.** 中学教育

☐ **D.** 职业培训

☐ **E.** 大专教育

☐ **F.** 大学教育

☐ **G.** 研究生教育

8.10. 你现在的雇用状态是什么？

☐ **A.** 全职就业（每周等于或多于35小时）

☐ **B.** 兼职就业（每周少于35小时）

☐ **C.** 雇主或自雇用

☐ **D.** 退休

☐ **E.** 无报酬的工作

☐ **F.** 无业

8.11. 你目前的主要职业是什么?

☐ **A.** 经理或管理人员

☐ **B.** 在政府，法律，科学，工程，教育，卫生，企业，商业，贸易，运输，服务，体育等部门工作的专业技术人员

☐ **C.** 工人或农民

☐ **D.** 学生

☐ **E.** 志愿者

☐ **F.** 其它（请注明）：＿＿＿＿＿＿＿＿＿＿

☐ **G.** 无职业

8.12. 你现在的宗教是什么?

☐ **A.** 佛教

☐ **B.** 基督教

☐ **C.** 伊斯兰教

☐ **D.** 犹太教

☐ **E.** 其它（请注明）：＿＿＿＿＿＿＿＿＿＿

☐ **F.** 无宗教

8.13. 去年你的个人总收入（税前收入）是多少?

☐ **A.** 少于30,000元

☐ **B.** 30,000元 - 49,999元

☐ **C.** 50,000元 - 69,999元

☐ **D.** 70,000元 - 99,999元

☐ **E.** 100,000元或以上

☐ **F.** 不知道

请仔细复查你的回答！

感谢你花时间来完成本问卷！在送回问卷给我们之前，请检查你的回答没有出现意外的错误。你的洞察和信息对多元的文化卫生研究和加拿大的政策制定是非常有价值的。我们将使用你的反馈来改进未来的研究。

请使用下面的空栏提供如何改进我们工作的补充意见。如果你对本调查有任何进一步的问题和关注，请通过电子邮件（tang0139@flinders.edu.au）或电话（819-420-1691）或手机（819-708-3099）与唐宁联系。十分感谢你！

健康的饮食！　　　　　　健康的生活！

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多元文化的生活方式改變問卷

🍁　多元文化的加拿大　🍁

1．介绍

　　感謝你參與這項加拿大渥太華和加蒂諾市的這項調查。這是一項英文，法文或中文移民生活方式改變的多元文化調查。這項調查將需要大約 20-30 分鐘。請不要把你的名字，聯繫方式寫在任何一頁上；這份問卷是嚴格匿名的：沒有任何回答者能夠被識別。我們非常感謝你能誠實地回答這些問題，並也能尊重其他人的隱私。

　　完成這一問卷一次後，你將獲得 20 加元。

　　請讀在下一頁首端的回答問卷說明。沒有不正確或錯誤的答案！

　　我們鼓勵你回答所有的問題。當你認為沒有任何適合的答案時，選擇最接近的答案。你可以隨時尋求主要研究者的幫助。完成這一問卷後，你可以要求獲得最後研究報告的概要。非常感謝你！

2．聯繫信息

　　唐寧（主要研究者），電子郵箱：_tang0139@flinders.edu.au_ ，電話：819-420-1691，手機：819-708-3099，地址：21-76 rue Richard, Gatineau, Québec J8Y 4Z2, Canada，澳大利亞弗林德斯大學醫學分校公共衛生繫公共衛生學博士生。唐寧的主要導師：澳大利亞弗林德斯大學醫學分校科林·麥克杜格爾副教授（電子郵箱：_colin.macdougall@flinders.edu.au_ ，電話：+61 08 7221 8412）。

3．遞交信息

　　請將本問卷交回給主要研究者：唐寧。

回答指導：

對每一個問題，用一支黑色鉛筆標記你的答案。**在每題的答案選擇框中只標記一個框，除非在一些問題中的特別回答指導告訴你標記所有適合的框（一個或多個框）。**

適當的標記： ☒ X

第一部分：吸煙改變

1.1. 吸煙行為改變：

1.1.1. 下列哪項最能描述你？

☐ **A.** 你從不吸煙

☐ **B.** 你在抵達加拿大前吸煙，但抵達後戒煙

☐ **C.** 你在抵達加拿大前不吸煙，但抵達後開始吸煙

☐ **D.** 如果你在抵達加拿大前和抵達以來都吸煙 ➝ 請到下面的問題 **1.1.1.1.**和問題 **1.1.1.2.** ⬇

　　1.1.1.1. 在抵達加拿大前的**最後一年中**，你平均**每天**抽多少支香煙？

　　☐ **a.** 1 – 10 支（少于一包）

　　☐ **b.** 11 – 20 支（一包）

　　☐ **c.** 21 – 40 支（兩包）

　　☐ **d.** 41支 或 以上（超過兩包）

　　☐ **e.** 不知道

　　1.1.1.2. **過去的一年中**在加拿大，你平均**每天**抽多少支香煙？

　　☐ **a.** 1 – 10 支（少于一包）

　　☐ **b.** 11 – 20 支（一包）

　　☐ **c.** 21 – 40 支（兩包）

　　☐ **d.** 41支 或 以上（超過兩包）

　　☐ **e.** 不知道

1.2. 吸煙理念改變：

1.2.1. 在抵達加拿大之前，下列陳述中的哪項最能描述你的吸煙理念？

☐**A.** 吸煙對健康<u>**極其有害**</u>

☐**B.** 吸煙對健康<u>**非常有害**</u>

☐**C.** 吸煙對健康<u>**有害**</u>

☐**D.** 吸煙對健康<u>**輕微有害**</u>

☐**E.** 吸煙對健康<u>**非常輕微有害**</u>

☐**F.** 吸煙對健康<u>**无害**</u>

☐**G.** 不知道

1.2.2. 自從抵達加拿大以來，下列陳述中的哪項最能描述你的吸煙理念？

☐**A.** 吸煙對健康<u>**極其有害**</u>

☐**B.** 吸煙對健康<u>**非常有害**</u>

☐**C.** 吸煙對健康<u>**有害**</u>

☐**D.** 吸煙對健康<u>**輕微有害**</u>

☐**E.** 吸煙對健康<u>**非常輕微有害**</u>

☐**F.** 吸煙對健康<u>**无害**</u>

☐**G.** 不知道

第二部分：飲用酒消耗改變

2.1. 酒精消耗行為改變：

2.1.1. 下列哪項最能描述你？

☐**A.** 你從不飲酒（包括任何含酒精的飲料）

☐**B.** 你在抵達加拿大前飲酒，但抵達後戒酒

☐**C.** 你在抵達加拿大前不飲酒，但抵達後開始飲酒

☐**D.** 如果你在抵達加拿大前和抵達达以來都飲酒 ➜ 請到下面的問題 **2.1.1.1**.和問題**2.1.1.2.** ⬇

    2.1.1.1. 在抵達加拿大前的**最後一年中**，你平均**每天**飲多少酒(啤酒，白酒)？

    ☐**a.** 少於或等於0.5瓶啤酒，或少於或等於1杯白酒

☐**b.** 1－2瓶啤酒，或2－3杯白酒

☐**c.** 2－3瓶啤酒，或4－6杯白酒

☐**d.** 4瓶啤酒或以上，或7－8杯白酒或以上

☐**e.** 不知道

2.1.1.2. **過去的一年中**在加拿大，你平均**每天**飲多少酒(啤酒，白酒)？

☐**a.** 少於或等於0.5瓶啤酒，或少於或等於1杯白酒

☐**b.** 1－2瓶啤酒，或2－3杯白酒

☐**c.** 2－3瓶啤酒，或4－6杯白酒

☐**d.** 4瓶啤酒或以上，或7－8杯白酒或以上

☐**e.** 不知道

2.2. 酒精消耗理念改變：

2.2.1. 在抵達加拿大之前，下列陳述中的哪項最能描述你的飲酒理念？

☐**A.** 過量飲酒對健康**極其有害**

☐**B.** 過量飲酒對健康**非常有害**

☐**C.** 過量飲酒對健康**有害**

☐**D.** 過量飲酒對健康**輕微有害**

☐**E.** 過量飲酒對健康**非常輕微有害**

☐**F.** 過量飲酒對健康**无害**

☐**G.** 不知道

2.2.2. 自從抵達加拿大以來，下列陳述中的哪項最能描述你的飲酒理念？

☐**A.** 過量飲酒對健康**極其有害**

☐**B.** 過量飲酒對健康**非常有害**

☐**C.** 過量飲酒對健康**有害**

☐**D.** 過量飲酒對健康**輕微有害**

☐**E.** 過量飲酒對健康**非常輕微有害**

☐**F.** 過量飲酒對健康**无害**

☐**G.** 不知道

第三部分：情緒改變

3.1. 情緒狀態改變：

3.1.1. 在抵達加拿大之前，你怎样描述你總體的情緒狀態？

☐ **A.** 非常輕鬆

☐ **B.** 輕鬆

☐ **C.** 較輕鬆

☐ **D.** 中等（既不輕鬆也不焦慮）

☐ **E.** 較焦慮

☐ **F.** 焦慮

☐ **G.** 非常焦慮

☐ **H.** 不知道

3.1.2. 自從抵達加拿大以来，你怎样描述你總體的情緒狀態？

☐ **A.** 非常輕鬆

☐ **B.** 輕鬆

☐ **C.** 較輕鬆

☐ **D.** 中等（既不輕鬆也不焦慮）

☐ **E.** 較焦慮

☐ **F.** 焦慮

☐ **G.** 非常焦慮

☐ **H.** 不知道

3.2. 情绪理念改變：

3.2.1. 在抵達加拿大之前，下列陳述中的哪項最能描述你的焦慮理念？

☐ **A.** 焦慮對健康**有極其強烈的負面影響**

☐ **B.** 焦慮對健康**有強烈的負面影響**

☐ **C.** 焦慮對健康**有負面影響**

☐ **D.** 焦慮對健康**有輕微的負面影響**

☐**E.** 焦慮對健康**有非常輕微的負面影響**

☐**F.** 焦慮對健康**沒有負面影響**

☐**G.** 不知道

3.2.2. 在抵達加拿大之後，下列陳述中的哪項最能描述你的緊張和焦慮理念？

☐**A.** 焦慮對健康**有極其強烈的負面影響**

☐**B.** 焦慮對健康**有強烈的負面影響**

☐**C.** 焦慮對健康**有負面影響**

☐**D.** 焦慮對健康**有輕微的負面影響**

☐**E.** 焦慮對健康**有非常輕微的負面影響**

☐**F.** 焦慮對健康**沒有負面影響**

☐**G.** 不知道

第四部分：睡眠改變

4.1. 睡眠行為改變：

4.1.1. 睡眠時間改變：

4.1.1.1. 在抵達加拿大之前，你平均**每天**睡多少小時？

☐**A.** 少於6或等于6小時

☐**B.** 7 – 8小時

☐**C.** 9小時

☐**D.** 10小時或以上。

☐**E.** 不知道

4.1.1.2. 自從抵達加拿大以來，你平均**每天**睡多少小時？

☐**A.** 少於6或等于6小時

☐**B.** 7 – 8小時

☐**C.** 9小時

☐**D.** 10小時或以上。

☐**E.** 不知道

4.1.2. 睡眠質量改變：

4.1.2.1. 在抵達加拿大之前，你**每天**的睡眠质量怎样？

☐**A.** 極好

☐**B.** 很好

☐**C.** 好。

☐**D.** 一般（既不好也不差）

☐**E.** 差

☐**F.** 很差

☐**G.** 極差

☐**H.** 不知道

4.1.2.2. 自從抵達加拿大以来，你**每天**的睡眠质量怎样？

☐**A.** 極好

☐**B.** 很好

☐**C.** 好

☐**D.** 一般（既不好也不差）

☐**E.** 差

☐**F.** 很差

☐**G.** 極差

☐**H.** 不知道

4.2. **睡眠理念改變：**

4.2.1. 在抵達加拿大之前，下列陳述中的哪項最能描述你的睡眠理念？

☐**A.** 每天至少7-8個小時高質量的睡眠**極其有助於**健康

☐**B.** 每天至少 7-8 個小時高質量的睡眠**非常有助於**健康

☐**C.** 每天至少 7-8 個小時高質量的睡眠**有助於**健康

☐**D.** 每天至少 7-8 個小時高質量的睡眠**輕微有助於**健康

☐**E.** 每天至少 7-8 個小時高質量的睡眠**非常輕微有助於**健康

☐**F.** 每天至少 7-8 個小時高質量的睡眠**不助於**健康

☐**G.** 不知道

4.2.2. 自從抵達加拿大之後，下列陳述中的哪項最能描述你的睡眠理念？

☐ **A.** 每天至少7-8個小時高質量的睡眠**極其有助於**健康

☐ **B.** 每天至少 7-8 個小時高質量的睡眠**非常有助於**健康

☐ **C.** 每天至少 7-8 個小時高質量的睡眠**有助於**健康

☐ **D.** 每天至少 7-8 個小時高質量的睡眠**輕微有助於**健康

☐ **E.** 每天至少 7-8 個小時高質量的睡眠**非常輕微有助於**健康

☐ **F.** 每天至少 7-8 個小時高質量的睡眠**不助於**健康

☐ **G.** 不知道

第五部分：身體活動改變

5.1. 身體活動行為改變：
5.1.1. 身體鍛練時間改变：
5.1.1.1. 在抵達加拿大之前，你平均**每週**進行多长時間的身體鍛練？

☐ **A.** 少於或等于1小時

☐ **B.** 2 - 3時

☐ **C.** 4 - 5小時

☐ **D.** 6 - 7小時

☐ **E.** 8小時或以上

☐ **F.** 不知道

5.1.1.2. 自从抵達加拿大以来，你平均**每週**進行多长時間的身體鍛練？

☐ **A.** 少於或等于1小時

☐ **B.** 2 - 3時

☐ **C.** 4 - 5小時

☐ **D.** 6 - 7小時

☐ **E.** 8小時或以上

☐ **F.** 不知道

5.1.2. 身體活動水平改變：

5.1.2.1. 在抵達加拿大之前，下列描述中的哪項最能代表你<u>一天</u>的身體活動水平？

☐**A. 很輕**（一天在工作或家中總是坐著，有非常少的走動和做很少一點家務）。

☐**B. 輕**（一天在工作或家中經常坐著，有時站立，有少量的走動和做少量的家務）

☐**C. 中度**（一天在工作或家中有時坐著或站立，有時走動，有一到兩小時的活動， 如操作機器和重設備，園藝，做家務，保齡球，打高爾夫球等）

☐**D. 中重度**（一天在工作或家中經常站立，經常走動，但有中度到劇烈的活動，如徒步旅行，瑜珈，中國太極拳或氣功，健身运动等）

☐**E. 重度**（一天在工作或家中總是站立，頻繁走動，在工作或閒暇時間有高水平的劇烈活動，如跑步，踢足球，游泳，滑雪等）

☐**F.** 不知道

5.1.2.2. 自從抵達加拿大以來，下列描述中的哪項最能代表你<u>一天</u>的身體活動水平？

☐**A. 很輕**（一天在工作或家中總是坐著，有非常少的走動和做很少一點家務）

☐**B. 輕**（一天在工作或家中經常坐著，有時站立，有少量的走動和做少量的家務）

☐**C. 中度**（一天在工作或家中有時坐著或站立，有時走動，有一到兩小時的活動， 如操作機器和重設備，園藝，做家務，保齡球，打高爾夫球等）

☐**D. 中重度**（一天在工作或家中經常站立，經常走動，但有中度到劇烈的活動，如徒步旅行，瑜珈，中國太極拳或氣功，健身运动等）

☐**E. 重度**（一天在工作或家中總是站立，頻繁走動，在工作或閒暇時間有高水平的劇烈活動，如跑步，踢足球，游泳，滑雪等）

☐**F.** 不知道

5.1.3. 身體鍛練項目改變：

5.1.3.1. 在抵達加拿大之前，你<u>**每週**</u>進行哪些形式的身體鍛練？ *<u>請在下列答案選擇框中標記所有適合的框（一個或多個框）或在所提供的空白處 "其它" 寫下你的答案。</u>*

☐A. 步行　　　　☐F. 足球　　　　☐M. 游泳

☐B. 慢跑或跑步　☐G. 籃球　　　　☐N. 瑜珈

☐C. 自行车　　　☐H. 曲棍球　　　☐O. 中國太極拳或氣功

☐ D. 徒步旅行 ☐ I. 網球 ☐ P. 健身运动

☐ E. 滑雪 ☐ K. 乒乓球 ☐ Q. 其它（請註明）：＿＿＿＿＿

☐ E. 滑冰 ☐ L. 羽毛球 ☐ R. 未鍛練。

5.1.3.2. 自從抵達加拿大以來，你**每週**進行哪些形式的身體鍛練？ *請在下列答案選擇框中標記所有適合的框（一個或多個框）或在所提供的空白處"其它"寫下你的答案。*

☐ A. 步行 ☐ F. 足球 ☐ M. 游泳

☐ B. 慢跑或跑步 ☐ G. 籃球 ☐ N. 瑜珈

☐ C. 自行车 ☐ H. 曲棍球 ☐ O. 中國太極拳或氣功

☐ D. 徒步旅行 ☐ I. 網球 ☐ P. 健身运动

☐ E. 滑雪 ☐ K. 乒乓球 ☐ Q. 其它（請註明）：＿＿＿＿＿

☐ E. 滑冰 ☐ L. 羽毛球 ☐ R. 未鍛練。

5.2. 身體鍛練理念改變：

5.2.1. 在抵達加拿大之前，下列陳述中的哪項最能描述你**每週**的身體鍛練理念？

☐ **A.** 上述鍛練能**非常強烈地促進**健康

☐ **B.** 上述鍛練能**強烈地促進**健康

☐ **C.** 上述鍛練能**促進**健康

☐ **D.** 上述鍛練能**輕微地促進**健康

☐ **E.** 上述鍛練能**非常輕微地促進**健康

☐ **F.** 上述鍛練**不能促進**健康

☐ **G.** 不知道

5.2.2. 自從抵達加拿大以來，下列陳述中的哪項最能描述你**每週**的身體鍛練理念？

☐ **A.** 上述鍛練能**非常強烈地促進**健康

☐ **B.** 上述鍛練能**強烈地促進**健康

☐ **C.** 上述鍛練能**促進**健康

☐ **D.** 上述鍛練能**輕微地促進**健康

☐ **E.** 上述鍛練能**非常輕微地促進**健康

☐**F.** 上述鍛練**不能促進**健康

☐**G.** 不知道

第六部分：飲食改變

6.1. 飲食行為改變：

6.1.1. 營養食品消耗改變：

自從抵達加拿大以來，你**每週**的**營養食品**（如：瘦肉，牛肉，雞，魚，蛋，新鮮水果和蔬菜等）消耗改變了嗎？

☐**A.** 改變 ➔ 请到下面的問題 **6.1.1.1.**和問題 **6.1.1.2.** ⬇

☐**B.** 未改變

☐**C.** 不知道

> **6.1.1.1.** 自從抵達加拿大以來，你**每週增加**了哪些**營養食品**的消耗？*請在下列答案選擇框中標記所有適合的框（一個或多個框）或在所提供的空白處"其它"寫下你的答案。*
>
> **注：**
> 在這一問題中，"**增加**"這個詞指的是這一食品的種類及數量的增加。例如，如果你在抵達加拿大之前不吃"雞蛋"，但你在抵達加拿大以來吃"雞蛋"，你應該選擇"**f.** 蛋"；如果你在抵達加拿大之前平均每週吃"4個雞蛋"，但你在抵達加拿大以來平均每周吃"7個雞蛋"，你也應該選擇"**f.** 蛋"。

☐**a.** 瘦肉　　☐**h.** 低脂牛奶　　☐**o.** 馬鈴薯

☐**b.** 牛肉　　☐**i.** 酸奶　　☐**p.** 紅薯

☐**c.** 雞　　☐**j.** 豆腐　　☐**q.** 新鮮蔬菜

☐**d.** 鱼　　☐**k.** 米飯　　☐**r.** 新鮮水果

☐**e.** 蝦　　☐**l.** 麵食　　☐**s.** 天然果汁

☐**f.** 蛋　　☐**m.** 燕麥片　　☐**t.** 茶

☐**g.** 蜂蜜　　☐**n.** 玉米　　☐**u.** 其它（請註明）：＿＿＿＿

6.1.1.2. 自從抵達加拿大以來，你**每週減少**了哪些**營養食品**的消耗？*請在下列答案選擇框中標記所有適合的框（一個或多個框）或在所提供的空白處"其它"寫下你的答案。*

注：

在這一問題中，**"減少"** 這個詞指的是這一食品的種類及數量的減少。例如，如果你在抵達加拿大之前吃"雞蛋"，但你在抵達加拿大以來不吃"雞蛋"，你應該選擇"**f.** 蛋"；如果你在抵達加拿大之前平均每週吃"4個雞蛋"，但你在抵達加拿大以來平均每週吃"2個雞蛋"，你也應該選擇"**f.** 蛋"。

☐ **a.** 瘦肉   ☐ **h.** 低脂牛奶   ☐ **o.** 馬鈴薯

☐ **b.** 牛肉   ☐ **i.** 酸奶   ☐ **p.** 紅薯

☐ **c.** 雞   ☐ **j.** 豆腐   ☐ **q.** 新鮮蔬菜

☐ **d.** 鱼   ☐ **k.** 米飯   ☐ **r.** 新鮮水果

☐ **e.** 蝦   ☐ **l.** 麵食   ☐ **s.** 天然果汁

☐ **f.** 蛋   ☐ **m.** 燕麥片   ☐ **t.** 茶

☐ **g.** 蜂蜜   ☐ **n.** 玉米   ☐ **u.** 其它（請註明）：＿＿＿＿

6.1.2. **垃圾和加工食品**消耗改變：

自從抵達加拿大以來，你**每週**的**垃圾和加工食品**（如：肥肉，油炸食品，罐頭食品，高糖果汁等）消耗改變了嗎？

☐ **A.** 改變 ➝ 请到下面的問題 **6.1.2.1.** 和問題 **6.1.2.2.** ⬇

☐ **B.** 未改變

☐ **C.** 不知道

6.1.2.1. 自從抵達加拿大以來，你**每週增加**了哪些**垃圾和加工食品**的消耗？*請在下列答案選擇框中標記所有適合的框（一個或多個框）或在所提供的空白處"其它"寫下你的答案。*

注：

在這一問題中，**"增加"** 這個詞指的是這一食品的種類及數量的增加。例如，如果你在抵達加拿大之前不吃"肥肉"，但你在抵達加拿大以來吃"肥肉"，你應該選擇"**a.** 肥肉"；如果你在抵達加拿大之前平均每週吃"4次肥肉"，但你在抵達加拿大以來平均每週吃"7次肥肉"，你也應該選擇"**a.** 肥肉"。

☐ **a.** 肥肉　　　　　　　　　　☐ **h.** 高糖蛋糕和點心

☐ **b.** 油炸食品　　　　　　　　☐ **i.** 糖果和巧克力

☐ **c.** 醃製的蔬菜　　　　　　　☐ **j.** 汽水和可樂

☐ **d.** 鹽製的肉　　　　　　　　☐ **k.** 高糖果汁

☐ **e.** 香腸和肉乾　　　　　　　☐ **l.** 冰淇淋和冰棒

☐ **f.** 炸薯條，餅乾，方便麵　　☐ **m.** 加糖咖啡

☐ **g.** 罐頭食品　　　　　　　　☐ **n.** 其它（請註明）：＿＿＿＿＿

6.1.2.2. 自從抵達加拿大以來，你**每週**<u>減少</u>了哪些<u>垃圾和加工食品</u>的消耗？***請在下列<u>答案選擇框中標記所有適合的框（一個或多個框）或在所提供的空白處"其它"寫下你的答案</u>。***

注：

在這一問題中，**"減少"**這個詞指的是這一食品的種類及數量的減少。例如，如果你在抵達加拿大之前吃"肥肉"，但你在抵達加拿大以來不吃"肥肉"，你應該選擇"**a.** 肥肉"；如果你在抵達加拿大之前平均每週吃"4次肥肉"，但你在抵達加拿大以來平均每週吃"2次肥肉"，你也應該選擇"**a.** 肥肉"。

☐ **a.** 肥肉　　　　　　　　　　☐ **h.** 高糖蛋糕和點心

☐ **b.** 油炸食品　　　　　　　　☐ **i.** 糖果和巧克力

☐ **c.** 醃製的蔬菜　　　　　　　☐ **j.** 汽水和可樂

☐ **d.** 鹽製的肉　　　　　　　　☐ **k.** 高糖果汁

☐ **e.** 香腸和肉乾　　　　　　　☐ **l.** 冰淇淋和冰棒

☐ **f.** 炸薯條，餅乾，方便麵　　☐ **m.** 加糖咖啡

☐ **g.** 罐頭食品　　　　　　　　☐ **n.** 其它（請註明）：＿＿＿＿＿

6.2. 飲食理念改變：

6.2.1. 在抵達加拿大之前，下列陳述中的哪項最能描述你的**營養食品**理念？

☐ **A.** 上述這些營養食品能<u>**非常強烈地促進**</u>健康

☐ **B.** 上述這些營養食品能<u>**強烈地促進**</u>健康

☐ **C.** 上述這些營養食品能<u>**促進**</u>健康

☐**D.** 上述这些營養食品能**轻微地促進**健康

☐**E.** 上述这些營養食品能**非常轻微地促進**健康

☐**F.** 上述这些營養食品**不能促進**健康

☐**G.** 不知道

6.2.2. 自從抵達加拿大以來，下列陳述中的哪項最能描述你的**營養食品**理念？

☐**A.** 上述这些營養食品能**非常强烈地促進**健康

☐**B.** 上述这些營養食品能**强烈地促進**健康

☐**C.** 上述这些營養食品能**促進**健康

☐**D.** 上述这些營養食品能**轻微地促進**健康

☐**E.** 上述这些營養食品能**非常轻微地促進**健康

☐**F.** 上述这些營養食品**不能促進**健康

☐**G.** 不知道

6.2.3. 在抵達加拿大之前，下列陳述中的哪項最能描述你的**垃圾和加工食品**理念？

☐**A.** 上述这些垃圾和加工食品對健康**有非常强烈的不利影響**

☐**B.** 上述这些垃圾和加工食品對健康**有强烈的不利影響**

☐**C.** 上述这些垃圾和加工食品對健康**有不利影響**

☐**D.** 上述这些垃圾和加工食品對健康**有轻微的不利影響**

☐**E.** 上述这些垃圾和加工食品對健康**有非常轻微的不利影響**

☐**F.** 上述这些垃圾和加工食品對健康**沒有不利影響**

☐**G.** 不知道

6.2.4. 自從抵達加拿大以來，下列陳述中的哪項最能描述你的**副食品**理念？

☐**A.** 上述这些垃圾和加工食品對健康**有非常强烈的不利影響**

☐**B.** 上述这些垃圾和加工食品對健康**有强烈的不利影響**

☐**C.** 上述这些垃圾和加工食品對健康**有不利影響**

☐**D.** 上述这些垃圾和加工食品對健康**有轻微的不利影響**

☐**E.** 上述这些垃圾和加工食品對健康**有非常轻微的不利影響**

☐**F.** 上述这些垃圾和加工食品對健康**沒有不利影響**

☐**G.** 不知道

第七部分：健康狀況改變

7.1. 健康狀況改變：

7.1.1. 在抵達加拿大之前，你怎样估計你總體的健康狀況？

☐**A.** 極好

☐**B.** 很好

☐**C.** 好

☐**D.** 一般（既不好也不差）

☐**E.** 差

☐**F.** 很差

☐**G.** 極差

☐**H.** 不知道

7.1.2. 自從抵達加拿大以來，你怎样估計你總體的健康狀況？

☐**A.** 極好

☐**B.** 很好

☐**C.** 好

☐**D.** 一般（既不好也不差）

☐**E.** 差

☐**F.** 很差

☐**G.** 極差

☐**H.** 不知道

第八部分：人口統計的問題

8.1. 你的母語是哪種語言？

☐**A.** 英文

☐**B.** 法文

☐**C.** 中文

8.3. 你能說什麼語言? *請在下列答案選擇框中標記所有適合的框（一個或多個框）或在所提供的空白處寫下你的答案。*

☐**A.** 英文　　　　　　　　☐**C.** 中文。

☐**B.** 法文　　　　　　　　☐**D.** 其它（請註明）：_____

8.2. 你原籍哪個國家？_____

8.3. 你在哪個年齡組?

☐**A.** 18 – 24岁

☐**B.** 25 – 34岁

☐**C.** 35 – 44岁

☐**D.** 45 – 54岁

☐**E.** 55 – 64岁

☐**F.** 65 – 74岁

☐**G.** 75 – 84岁

☐**H.** 85岁或以上

8.4. 你的性別是什麼?

☐**A.** 男

☐**B.** 女

8.5. 你目前的婚姻狀況是什麼?

☐**A.** 已婚

☐**B.** 同居

☐**C.** 離婚

☐**D.** 寡婦或鰥夫

☐**E.** 分居

☐**F.** 單身（從未結婚）

☐**G.** 不願告知

8.6. 你的移民簽證類別是什麼?

☐**A.** **主申請人類**的或**單個申請者類**的技術或商業**移民**

☐**B.** **配偶或供養類**的技術或商業移民（**主申請人的配偶或子女**）

☐**C.** **家庭團聚類移民**（通過與加拿大公民或永久性居民結婚而移民的家庭移民，或由親屬或家庭成員擔保的家庭移民，這個親屬或家庭成員是加拿大公民或永久性居民）

☐**D.** 其它類

8.7. 你已生活在加拿大多久?

☐**A.** 1年或近1年

☐**B.** 2 – 5年

☐**C.** 6 – 10年

☐**D.** 11 – 20年

☐**E.** 21年或以上

8.8. 你的最高教育水平是什麼?

☐**A.** 未受教育

☐**B.** 小學教育

☐**C.** 中學教育

☐**D.** 職業培训

☐**E.** 大專教育

☐**F.** 大學教育

☐**G.** 研究生教育

8.9. 你現在的僱用狀態是什麼?

☐**A.** 全職就業（每週等於或多於35小時）

☐**B.** 兼職就業（每週少於35小時）

☐**C.** 雇主或自僱用

☐**D.** 退休

☐**E.** 無報酬的工作

☐**F.** 無業

8.11. 你目前的主要職業是什麼?

☐**A.** 經理或管理人員

☐**B.** 在政府，法律，科學，工程，教育，衛生，企業，商業，貿易，运输，運輸，服務，體育等門工作的專業技術人員

☐**C.** 工人或農民

☐**D.** 學生

☐**E.** 志願者

☐**F.** 其它（請註明）：＿＿＿＿＿＿＿＿＿＿

☐**G.** 無職業

8.10. 你现在的宗教是什麼?

☐**A.** 佛教

☐**B.** 基督教

☐**C.** 伊斯蘭教

☐**D.** 犹太教

☐**E.** 其它（請註明）：＿＿＿＿＿＿＿＿＿＿

☐**F.** 無宗教

8.11. 去年你的個人總收入（稅前收入）是多少?

☐**A.** 少於30,000元

☐**B.** 30,000元 － 59,999元

☐**C.** 50,000元 － 69,999元

☐**D.** 70,000元 － 99,999元

☐**E.** 100,000元或以上

☐**F.** 不知道

請仔細複查你的回答！

感謝你花時間來完成本問卷！在送回問卷給我們之前，請檢查你的回答沒有意外地出現錯誤。你的洞察和信息對多元文化的衛生研究和加拿大的政策決定是非常有價值的。我們將使用你的反饋來改進未來的研究！

請使用下面的空欄提供如何改進我們工作的補充意見。如果你對本調查有任何進一步的問題和關注，請通過電子郵件（tang0139@flinders.edu.au ）或電話（819-420-1691）或手機（819-708-3099）與唐寧聯繫。十分感謝你！

健康的飲食！　　　　　　　健康的生活！

Grain Products　Vegetables & Fruit　Milk Products　Meat & Alternatives

穀物類食品　蔬菜和水果　奶類食品　肉類和肉產品

A (English/Anglais/英文)

English, French or Chinese Immigrants Wanted

-- Multicultural Lifestyle Change Survey
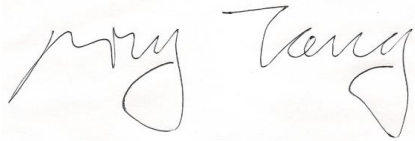
As part of a university research, a Multicultural Questionnaire is used in examining lifestyle changes of English, French or Chinese speaking immigrants. The multicultural lifestyle change survey focuses on immigrants who have resided in Ottawa or Gatineau one year or more. The immigrant participants must be 18 years or more. They were 16 years or more when they arrived in Canada. Each participant will receive $20 after responding a questionnaire once.

If you are interested in participating in the multicultural survey, please contact the principal researcher: Ning Tang, e-mail: tang0139@flinders.edu.au, telephone: 819-420-1691, mobile phone: 819-708-3099, address: 21-76 rue Richard, Gatineau, Québec J8Y 4Z2, Canada.

The public health survey will provide valuable data for multicultural health research. The data will contribute to immigrant health policy-making in Canada.

Thank you.

The principal researcher:

Ning Tang, DrPH (Doctor of Public Health) Student
Department of Public Health, School of Medicine,
Faculty of Health Sciences, Flinders University, Australia

Besoin d'immigrants anglophones, francophones ou sinophones

-- Le sondage multiculturel sur le changement de mode de vie
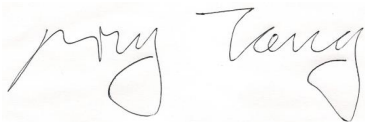
Dans le cadre d'une recherche universitaire, un questionnaire multiculturel sur le changement de mode de vie est utilisé pour étudier les changements de mode de vie des immigrants anglophones, francophones ou sinophones. Le sondage multiculturel sur le changement de mode de vie porte sur des immigrants qui résident à Ottawa ou Gatineau depuis une année ou plus. Les immigrants doivent avoir 18 ans ou plus. Ils ont été 16 ans ou plus quand ils sont arrivés au Canada. Chaque participant recevra 20 $ après avoir répondu une fois à un questionnaire.

Si vous êtes intéressés à participer au sondage multiculturel, veuillez communiquer avec le chercheur principal, Ning Tang, le courriel: tang0139@flinders.edu.au, téléphone: 819-420-1691, le téléphone mobile: 819-708-3099, l'adresse: 21-76 rue Richard, Gatineau, Québec J8Y 4Z2, Canada.

Le sondage de santé publique fournira des données précieuses pour la recherche en santé multiculturelle. Celles-ci contribueront à élaborer des politiques en santé pour les immigrants au Canada.

Merci.

Le chercheur principal:

Ning Tang, Étudiant de DrSP (doctorat en santé publique)
Département de santé publique, École de médecine
Faculté de sciences de santé, Université Flinders, Australie

需要英文，法文或中文移民

--- 多元文化的生活方式改变调查

作为一项大学研究的一部分，一份多元文化的问卷被用于捡验英文，法文或中文移民的生活方式改变。这项多元文化的生活方式改变调查对居住在渥太华或加蒂诺市一年或一年以上的移民。这些移民参与者必须年满 18 岁或以上。当他们抵达加拿大时，已满 16 岁或以上。每个参与者在回答问卷一次后将获得 20 加元。
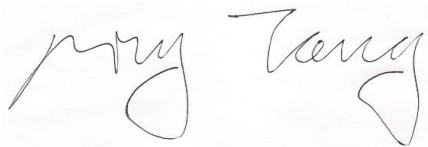
如果你对参与该项多元文化调查感兴趣，请与主要研究者唐宁联系，电子邮箱：tang0139@flinders.edu.au，电话：819-420-1691，手机：819-708-3099，地址：21-76 rue Richard, Gatineau, Québec J8Y 4Z2, Canada。

该项公共卫生调查将为多元文化的卫生研究提供有价值的资料。这些资料将有助于加拿大的移民卫生政策制定。

致谢！

主要研究者：

公共卫生学博士生: 唐宁

澳大利亚弗林德斯大学卫生科学院医学分校公共卫生系

需要英文，法文或中文移民

--- 多元文化的生活方式改變調查

作為一項大學研究的一部分，一份多元文化的問卷被用於撿驗英文，法文或中文移民的生活方式改變。這項多元文化的生活方式改變調查對居住在渥太華或加蒂諾市一年或一年以上的移民。這些移民必須年滿 18 歲或以上。當他們抵達加拿大時，已滿 16 歲或以上。每個參與者在回答問卷一次後將獲得 20 加元。
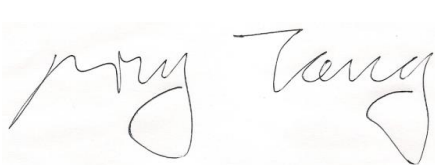
如果你對參與該項多元文化調查感興趣，請與主要研究者唐寧聯繫，電子郵箱：tang0139@flinders.edu.au，電話：819-420-1691，手機：819-708-3099，地址：21-76 rue Richard, Gatineau, Québec J8Y 4Z2, Canada。

該項公共衛生調查將為多元文化的衛生研究提供有價值的資料。這些資料將有助於加拿大的移民衛生政策制定。

致謝！

主要研究者：

公共衛生學博士生：唐寧

澳大利亞弗林德斯大學衛生科學院醫學分校公共衛生繫

A (English/Anglais/英文)

INFORMATION SHEET

-- Multicultural Lifestyle Change Survey

The multicultural health survey involves examining lifestyle changes of English, French or Chinese speaking immigrants.

Participants should be immigrants who have resided in Ottawa or Gatineau one year or more and are 18 years or more. You were 16 years or more when you arrived in Canada.

You will be asked to complete the questionnaire once.

You can choose an English, a French or a Chinese questionnaire to answer the questions. However, I recommend that your the choice of questionnaire be related to your maternal language. By completing and returning the questionnaire, consent is implied.

The research is being monitored by principal supervisor of the project, A/Professor Colin MacDougall (http://www.flinders.edu.au/people/colin.macdougall , E-mail: colin.macdougall@flinders.edu.au) in School of Medicine, Flinders University, Australia.

If you are negatively affected by the survey, you may contact Ethics Office in University of Ottawa (http://www.research.uottawa.ca/ethics/ , telephone: 613-562-5800-5387, E-mail: ethics@uottawa.ca) or the Community Health Centres in Ottawa or Gatineau: Sandy Hill Community Health Centre (221 Nelson Street, Ottawa, ON K1N1C7, telephone: 613-789-7752, www.sandyhillchc.on.ca); Centre Town Community Health Centre (420 rue Cooper Street, Ottawa, ON K2P 2N6, telephone: 613-233-4443, www.centretownchc.org); Services A Domicile De L'Outaouais (492, boulevard De l'Hôpital, Gatineau, QC J8V 2P4, telephone: 819-561-0911, http://www.servicesdo.ca/), Services De Santé Marleen Tassé (1171, boulevard Saint-Joseph, Gatineau, QC J8Z 2C3, telephone: 819-595-0790, http://www.marleentasse.com/).

If you have any inquires related to the survey or the questionnaire, you may contact the principal researcher: Ning Tang (E-mail: tang0139@flinders.edu.au , telephone: 819-420-1691, mobile phone: 819-708-3099, address: 21-76 rue Richard, Gatineau, Québec J8Y 4Z2, Canada).

Any personal details obtained for purpose of the survey will be erased at the end of the research and only the principal researcher administering the questionnaires and his supervisors will have access to these details at any stage of the survey.

Your participation is volunteering. You can withdraw from the survey at any stage and draw back your questionnaire.
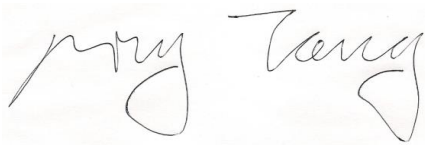
You will receive $20 after responding a questionnaire, even if you ask to draw back your questionnaire after submission.

You may ask for a summary of the results when the research is finalized. Any publication from this research will not reveal any participant details. The publications will include a higher degree dissertation and other academic journal papers.

The survey will provide valuable data for multicultural health research. The data will contribute to immigrant health policy-making in Canada.

Thank you very much for your participation.

The principal researcher:

Ning Tang DrPH (Doctor of Public Health) Student
Department of Public Health, School of Medicine,
Faculty of Health Sciences, Flinders University, Australia

FICHE D'INFORMATION

-- Le sondage multiculturel sur le changement de mode de vie

Ce sondage en santé multiculturel s'engage dans l'étude du changement de mode de vie des immigrants anglophones, francophones ou sinophones.

Les participants doivent être des immigrants qui résident à Ottawa ou Gatineau depuis une année ou plus, et avoir 18 ans et plus. Vous avez été 16 ans ou plus quand vous êtes arrivés au Canada.

On vous demande de remplir le questionnaire une fois.

Vous pouvez choisir un questionnaire anglais, français ou chinois. Toutefois, je recommande de choisir que le questionnaire était dans votre langue maternelle. En remplissant et en retournant le questionnaire, le consentement est impliqué.

La recherche est surveillée par le directeur principal du projet, l'A/Professeur Colin MacDougall (http://www.flinders.edu.au/people/colin.macdougall , le courriel: colin.macdougall@flinders.edu.au) à l'École de Médecine de Université Flinders en Australie.

Si vous êtes affecté négativement par le sondage, vous pouvez contacter le bureau éthique à l'Université d'Ottawa (http://www.research.uottawa.ca/ethics/ , téléphone: 613-562-5800-5387, le courriel: ethics@uottawa.ca) ou le centre de santé communautaire à Ottawa ou Gatineau: Sandy Hill Community Health Centre (221 Nelson Street, Ottawa, ON K1N1C7, telephone: 613-789-7752, www.sandyhillchc.on.ca); Centre Town Community Health Centre (420 rue Cooper Street, Ottawa, ON K2P 2N6, telephone: 613-233-4443, www.centretownchc.org); Services A Domicile De L'Outaouais (492, boulevard De l'Hôpital, Gatineau, QC J8V 2P4, téléphone: 819-561-0911, http://www.servicesdo.ca/), Services De Santé Marleen Tassé (1171, boulevard Saint-

Joseph, Gatineau, QC J8Z 2C3, téléphone: 819-595-0790, http://www.marleentasse.com/).

  Si vous avez des demandes de renseignements liées au sondage ou au questionnaire, vous pouvez communiquer avec le chercheur principal, Ning Tang (le courriel: tang0139@flinders.edu.au, le téléphone: 819-420-1691, le téléphone mobile: 819-708-3099, l'adresse: 21-76 rue Richard, Gatineau, Québec J8Y 4Z2, Canada).

  Les données personnelles obtenues durant le sondage seront effacés à la fin de la recherche et seulement le chercheur principal administrant les questionnaires et ses directeurs de thèse auront accès à ces informations à n'importe quel stade du sondage.

  Votre participation est volontaire. Vous pouvez vous retirer du sondage à tout moment et reprendre votre questionnaire.

  Vous recevrez 20 $ après avoir répondu une fois au questionnaire, même si vous demandez à reprendre votre questionnaire après la soumission.

  Vous pourrez demander un résumé des résultats lorsque la recherche sera terminée. Le publication de cette recherche ne révèlera aucun détail sur les participants. Les publications comprendront une thèse de doctorat et d'autres articles dans des revues académiques.

Le sondage fournira des données précieuses pour la recherche en santé multiculturelle. Celles-ci contribueront à élaborer des politiques en santé pour les immigrants au Canada.

Merci beaucoup de votre participation.

Le chercheur principal:

Ning Tang, Étudiant de DrSP (Doctorat en Santé Publique)
Département de santé publique, École de médecine,
Faculté de sciences de santé, Université Flinders, Australie

C（简化中文/Simplified Chinese/Chinois Simplié）

信息单

--- 多元文化的生活方式改变调查

这一多元文化的卫生调查包括捡验英文，法文或中文移民的生活方式改变。

参加者应该是居住在加拿大渥太华或加蒂诺市一年或一年以上的移民，并年满 18 岁或以上。当你们抵达加拿大时，已满 16 岁或以上。

你将回答问卷一次。

你可以选择英文，法文或中文问卷回答问题。不过，我建议你选择你母语的问卷。通过完成并交回这一多元文化问卷表明你同意参与该项调查。

这项研究由该项目负责人澳大利亚弗林德斯大学医学院科林·麦克杜格尔副教授 （http://www.flinders.edu.au/people/colin.macdougall ，电子邮箱：colin.macdougall@flinders.edu.au）监管。

如果你受到这项调查的负面影响，你可以与渥太华大学伦理办公室联系 （http://www.research.uottawa.ca/ethics/ ，电话：613-562-5800-5387，电子邮箱：ethics@uottawa.ca）或与在渥太华或加蒂诺的社区卫生中心联系：Sandy Hill Community Health Centre (221 Nelson Street, Ottawa, ON K1N1C7, telephone: 613-789-7752, www.sandyhillchc.on.ca)；Centre Town Community Health Centre (420 rue Cooper Street, Ottawa, ON K2P 2N6, telephone: 613-233-4443, www.centretownchc.org)；Services A Domicile De L'Outaouais (492, boulevard De l'Hôpital, Gatineau, QC J8V 2P4, téléphone: 819-561-0911, http://www.servicesdo.ca/), Services De Santé

Marleen Tassé (1171, boulevard Saint-Joseph, Gatineau, QC J8Z 2C3, téléphone: 819-595-0790, http://www.marleentasse.com/).

如果你对这项调查或这一问卷有任何疑问，你可以与主要研究者唐宁联系（电子邮箱：tang0139@flinders.edu.au；电话：819-420-1691；手机：819-708-3099；地址：21-76 rue Richard, Gatineau, Québec J8Y 4Z2, Canada）。

为调查目的所取得任何个人资料在研究结束后都将被抹去。只有管理这一问卷的主要研究者和他的导师们能在调查的任何阶段接近这些资料。

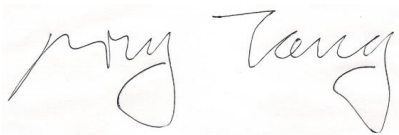你的参与是志愿的。你可以在调查的任何阶段退出并收回你的问卷。

完成问卷一次后你将得到 20 加元，即使你在递交后要求收回你的问卷。

研究结束后，你可以要求获得研究结果的概要。任何出版物不会揭示任何参与者的祥情。这些出版物将包括一篇高学位的论文和其它学术期刊文章。

这项调查将为多元文化卫生研究提供有价值的资料。这些资料将有助于加拿大的移民卫生政策制定。

非常感谢你的参与！

主要研究者：

公共卫生学博士生：唐宁

澳大利亚弗林德斯大学卫生科学院医学分校公共卫生系

D（传统中文/Traditional Chinese/Chinois Traditionnel）

信息單

--- 多元文化的生活方式改變調查

這一多元文化的衛生調查包括撿驗英文，法文或中文移民的生活方式改變。

參加者應該是居住在加拿大渥太華或加蒂諾市一年或一年以上的移民，並年滿 18 歲或以上。當你們抵達加拿大時，已滿 16 歲或以上。

你將回答問卷一次。

你可以選擇英文，法文或中文問卷回答問題。不過，我建議你選擇你母語的問卷。通過完成並交回這一多元文化問卷表明你同意參與該項調查。

這項研究由該項目負责人澳大利亞弗林德斯大學醫學院科林·麥克杜格爾副教授（http://www.flinders.edu.au/people/colin.macdougall ，電子郵箱：colin.macdougall@flinders.edu.au）監管。

如果你受到這項調查或研究不利的影響，你可以與渥太華大學倫理辦公室聯繫（http://www.research.uottawa.ca/ethics/ ，電話:613-562-5800-5387，電子郵箱：ethics@uottawa.ca）或與在渥太華或加蒂諾的社區衛生中心聯繫：Sandy Hill Community Health Centre (221 Nelson Street, Ottawa, ON K1N1C7, telephone: 613-789-7752, www.sandyhillchc.on.ca)；Centre Town Community Health Centre (420 rue Cooper Street, Ottawa, ON K2P 2N6, telephone: 613-233-4443, www.centretownchc.org)；Services A Domicile De L'Outaouais (492 , boulevard De l'Hôpital, Gatineau, QC J8V 2P4, téléphone: 819-561-0911, http://www.servicesdo.ca/)，Services De Santé Marleen Tassé (1171,

boulevard Saint-Joseph, Gatineau, QC J8Z 2C3, téléphone: 819-595-0790, http://www.marleentasse.com/).

　　如果你對這項調查或這一問卷有任何疑問，你可以與主要研究者唐寧聯繫（電子郵箱：tang0139@flinders.edu.au；電話：819-420-1691；手機：819-708-3099；地址：21-76 rue Richard, Gatineau, Québec J8Y 4Z2, Canada）。

　　為調查目的所取得任何個人資料在研究結束後都將被抹去。只有管理這一問卷的主要研究者和他的導師們能在調查的任何階段接近這些資料。

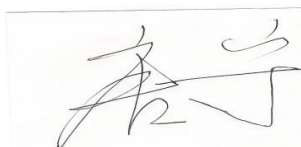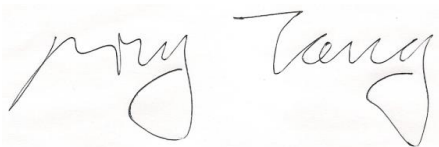　　你的參與是志願的。你可以在調查的任何階段退出並收回你的問卷。

　　完成問卷一次後你將得到 20 加元，即使你在遞交後要求收回你的問卷。

　　研究結束後，你可以要求獲得研究結果的概要。任何出版物不會揭示任何參與者的祥情。這些出版物將包括一篇高學位的論文和其它學術刊文章。

　　該項調查將為多元文化衛生研究提供有價值的資料。這些資料將有助於加拿大的移民卫衛策制定。

非常感谢你的參與！

主要研究者：

公共衛生學博士生：唐寧

澳大利亞弗林德斯大學衛生科學院醫學分校公共衛生繫

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A (English/Anglais/英文)

LETTER OF INTRODUCTION

-- Multicultural Lifestyle Change Survey

Dear Sir/Madame,

   This letter is to introduce Mr. Ning Tang, a Higher Degree student (Doctor of Public Health) in Discipline of Public Health, School of Medicine, Flinders University, Australia.

   As part of his university studies, he is undertaking research leading to the production (Examining lifestyle changes of English, French or Chinese speaking immigrants in Ottawa and Gatineau, Canada) for his doctoral dissertation. This research is being supervised by A/Professor Colin MacDougall in School of Medicine. Colin MacDougall is his principal supervisor.

   He would be most grateful if you would volunteer to assist in this research. You will be encouraged to answer questions in the multicultural lifestyle change questionnaire once. The instructions are included with the questionnaire. The questionnaire will be able to take approximately 20-30 minutes to complete. Your participation will be voluntary and you have the right to withdraw at any stage and draw back your questionnaire.

   Any information provided will be treated in the strictest confidence and none of the participants will be individually identifiable in the resulting report or other publications.

   Any enquiries you may have concerning this research may be directed to me at the address given: A/Professor Colin MacDougall (E-mail: colin.macdougall@flinders.edu.au; http://www.flinders.edu.au/people/colin.macdougall; telephone: +61 08 7221 8412).

If you have any concerns or complaints about the conduct of this research, you can contact his principal supervisor (see contact information above) or Flinders University Social and Behavioural Research Ethics Committee (telephone: +61 8201 3116, E-mail: [human.researchethics@flinders.edu.auhttps://imp.flinders.edu.au/horde/imp/message.php?address=human.researchethics%40flinders.edu.au&name=Andrea+Jacobs&actionID=156&array_index=0&index=542](https://imp.flinders.edu.au/horde/imp/message.php?address=human.researchethics%40flinders.edu.au&name=Andrea+Jacobs&actionID=156&array_index=0&index=542)) or Ethics Office in University of Ottawa (telephone: 613-562-5800, E-mail: ethics@uottawa.ca).

You may ask for the summary of final research report or a duplicate of abstract of his doctoral dissertation.

Thank you very much for your participation.

Yours sincerely

A/Professor Colin MacDougall, principal supervisor of Ning Tang
Department of Public Health, School of Medicine,
Faculty of Health Sciences, Flinders University, Australia

> *This research project has been approved by Social and Behavioural Research Ethics Committee in Flinders University and Ethnics Board in University of Ottawa. For more information*
>
> *regarding ethical approval of the project,*
>
> *ethics secretary in Flinders University can be contacted by telephone on +61 8201 3116, by fax on +61 8201 2035 or by email human.researchethics@flinders.edu.au , or*
>
> *ethics officer in University of Ottawa can be contacted by telephone on 613-562-5800, by*
>
> *email ethics@uottawa.ca .*

LETTRE D'INTRODUCTION

-- Le sondage multiculturel sur le changement de mode de vie

Bonjour Monsieur/ Madame,

Cette lettre a pour but de vous présenter M. Ning Tang, un étudiant au doctorat en santé publique au Discipline de santé publique, l'École de médecine, l'Université Flinders en Australie.

Dans le cadre de ses études universitaires pour sa thèse de doctorat, il entreprend une recherche impliquant la production (L'étude du changement de mode de vie des immigrants anglophones, francophones ou sinophones à Ottawa et Gatineau au Canada). Cette recherche est supervisée par l'A/Professeur Colin MacDdougall à l'École de médecine. Colin MacDdougall est son directeur principal de thèse.

Il serait très reconnaissant si vous acceptez de l'aider dans cette recherche. Il vous encourage à répondre aux questions du questionnaire multiculturel sur le changement de mode de vie une fois. Les instructions sont incluses dans le questionnaire. Il faut environ 20 à 30 minutes pour répondre au questionnaire.Votre participation est volontaire et vous avez le droit de vous retirer à tout moment et reprendre votre questionnaire.

Toute information fournie sera traitée dans la plus stricte confidentialité et aucun des participants ne sera identifié individuellement dans le rapport qui en résultera ou dans d'autres publications.

Toute demande de renseignements que vous pourriez avoir concernant cette recherche peut me être adressée aux adresses indiquées: l'A/ Professeur Colin MacDdougall

(http://www.flinders.edu.au/people/colin.macdougall , le courriel:
colin.macdougall@flinders.edu.au; téléphone: +61 08 7221 8412).

Si vous avez des préoccupations ou des plaintes concernant la conduite de cette recherche, vous pouvez communiquer avec son directeur principal de thèse (voir les coordonnées ci-dessus) ou du comité éthique de la recherche de société et de comportement de l'Université Flinders (le téléphone: +61 8201 3116, le courriel: human.researchethics@flinders.edu.au) ou du bureau éthique à l'Université d'Ottawa (le téléphone: 613-562-5800, le courriel: ethics@uottawa.ca).

Vous pouvez demander le sommaire du rapport final de la recherche ou une copie de résumé de thèse de doctorat.

Merci beaucoup de votre participation.

Veuillez agréer l'expression de mes salutations distinguées,

A/Professeur Colin MacDougall, directeur principal de thèse de Ning Tang
Département de santé publique, École de médecine
Faculté de sciences de santé, Université Flinders, Australie

Ce projet de recherche a été approuvé par le comité éthique de la recherche de société et de comportement de l'Université Flinders et le conseil éthnique à l'Université d'Ottawa. Pour plus d'informations concernant l'approbation éthique du projet,

la secrétaire du comité peut être contactée directement par téléphone au +61 8201 3116, par fax au +61 8201 2035 ou par le courriel human.researchethics@flinders.edu.au. , ou

la officielle du conseil peut être contactée directement par téléphone au 613-562-5800, ou par le courriel ethics@uottawa.ca .

C（简化中文/Simplified Chinese/Chinois Simplié）

介　　绍　　信

--- 多元文化的生活方式改变调查

尊敬的先生/女士，

　　此信是介绍唐宁先生，一位澳大利亚弗林德斯大学医学院公共卫生部的高学历学生（公共卫生博士）。

　　作为大学研究的一部分，他在为完成他的博士论文进行一项研究（捡验加拿大渥太华和加蒂诺市的英文，法文或中文移民的生活方式改变）。该项研究受澳大利亚弗林德斯大学医学院科林·麦克杜格尔副教授监管。科林·麦克杜格尔是他的主要导师。

　　他将非常感激你志愿地参与这项研究。你将回答这一多元文化的生活方式改变问卷一次，该问卷包含回答指导。完成这一问卷将可能需要你花费约 20-30 分钟。你的参与是自愿的，你有权在调查的任何阶段退出并收回你的问卷。

　　你所提供的任何信息将被最严格的保密，任何参与者都不会在任何研究报告或其它出版物中被识别。

　　按以下地址你可以向我询问有关这项研究的情况：科林·麦克杜格尔副教授（电子邮箱：colin.macdougall@flinders.edu.au；http://www.flinders.edu.au/people/colin.macdougall ，电话：+61 08 7221 8415）。

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如果你对这项研究的进行有任何疑问和不满，你可以按前面的地址与他的主要导师联系，或与弗林德斯大学社会和行为研究伦理委员会联系（电话：+61 8201 3116，电子邮箱：human.researchethics@flinders.edu.au）或与渥太华大学伦理办公室联系（电话：613-562-5800，电子邮箱：ethics@uottawa.ca）。

你可以要求获得最后研究报告的概要或他的博士论文摘要的副本。

非常感谢你的参与。

你真诚的：

科林·麦克杜格尔副教授，唐宁的主要导师

澳大利亚弗林德斯大学卫生科学院医学分校公共卫生系

该研究项目已获弗林德斯大学社会和行为研究伦理委员会和渥太华大学伦理委员会的批准）。欲了解更多有关该项目的伦理审批信息，

可与弗林德斯大学伦理委员会秘书联系，电话：+61 8201 3116，传真：+61 8201 2035 或

电子邮箱：human.researchethics@flinders.edu.au ，或

与渥太华大学伦理委员会工作人员联系，电话：613-562-5800 或

电子邮箱：ethics@uottawa.ca 。

D (传统中文/Traditional Chinese/Chinois Traditionnel)

介　　紹　　信

--- 多元文化的生活方式改變調查

尊敬的先生/女士，

　　此信是介紹唐寧先生，一位澳大利亞弗林德斯大學醫學院公共衛生部的高學歷學生（公共衛生博士）。

　　作为大學研究的一部分，他在為完成他的博士論文進行一項研究（撿驗加拿大渥太華和加蒂諾市的英文，法文或中文移民的生活方式改變）。該項研究受澳大利亞弗林德斯大學醫學院科林·麥克杜格爾副教授監管。科林·麥克杜格爾是他的主要導師。

　　他將非常感激你志願地參與這項研究。你將回答這一多元文化的生活方式改變問卷一次，該問卷包含回答指導。完成這一問卷將可能需要你花費約 20-30 分鐘。你的參與是自願的，你有權在調查的任何階段退出並收回你的問卷。

　　你所提供的任何信息將被最嚴格的保密，任何參與者都不會在任何研究報告或其它出版物中被識別。

　　按以下地址你可以向我詢問有關這項研究的情況：科林·麥克杜格爾副教授（電子郵箱：colin.macdougall@flinders.edu.au;
http://www.flinders.edu.au/people/colin.macdougall ，電話：+61 08 7221 8418）。

如果你對這項研究的進行有任何疑問和不滿，你可以按前面的地址與他的主要導師聯繫，或與弗林德斯大學社會和行為研究倫理委員會聯繫（電話：+61 8201 3116，或電子郵箱：human.researchethics@flinders.edu.au ）或與渥太華大學倫理辦公室聯繫（電話:613-562-5800，電子郵箱：ethics@uottawa.ca）。

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