Health Practitioner Motivations in Choosing the Very Remote Indigenous Community Workplace: Developing a Scale to Describe and Measure Them and their Relationship to Total Length of Stay.

by

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CERTIFICATE OF AUTHORSHIP/ORIGINALITY

I certify that this thesis 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.

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ABSTRACT

The aim of this study was to establish the nature of health practitioner motivations that influence the decision to seek work in the very remote Indigenous community, and to establish their potential for predicting substantial retention there. To achieve this, the developing of a set of practitioner work motivation subscales was required and described. The study's rationale was founded on the maldistribution of health practitioners across Australia and the high costs, in various terms, associated with high turnover and low retention rates of very remote Indigenous community practitioners.

The literature review found much work addressing recruitment and retention of health practitioners in rural, remote and very remote contexts, but little specifically focussed on measuring health practitioner motivations, or on their nature and influence. The power of incentives to attract and hold practitioners in the more remote locations received some attention. Conclusions across studies were difficult to make because of the variety of remoteness classifications and descriptors used, including the poorly defined use of the term "rural".

Theory predicted that work motivations can be validly and reliably described and measured via self report; that some of these measures will correlate with choice of workplace location and some with retention in the chosen job. It was hypothesised that the practitioner who chooses the very remote Indigenous community job will report some motivations that are very specific to that decision, a subset of which will be useful in predicting substantial length of stay (retention) in such work.

A total of 547 health practitioners from five ARIA+ levels of remoteness in Australia responded to the 140 item Health Practitioners Motivation Survey, which was compiled for the project. Using principal component analysis, 14 motivation components were identified which described the predominant motivations that influence health practitioners' workplace choice decisions. Eight subscales provided measures relating to variables associated with very remote work experience and specifically, for three years' very remote Indigenous (VRI) community work experience. These eight subscales provided the basis for a Very Remote Health Practitioner Motivation (VRHPM) subscale set, now ready for further development. Four of these subscales were used in a model to estimate the likelihood of a practitioner having more than three years' very remote Indigenous community work experience, compared with no such experience.

Early impetus for this study came from the "Three Ms" motivational construct, which predicts that the practitioner who chooses and stays for a substantial time in the underserved and isolated workplace, would need to be a "Missionary, a Mercenary or a Misfit" to do so. This assertion was not supported by this study, with respect to the very remote Indigenous community workplace.

The VRHPM subscale set and the predictive model will, when further developed, be useful in various human resource applications with regard to the very remote workplace. These are discussed in detail, as are the limitations and policy implications from the findings.

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ACRONYMS AND ABBREVIATIONS

ABS	Australian Bureau of Statistics
AIHW	Australian Institute of Health and Welfare
ARIA+	Accessibility/Remoteness Index of Australia +
Comp't	Component (used in tables where space was limited)
CPE/CPD	Continuing professional education/ continuing professional development
EFA	Exploratory Factor Analysis
Env't	Environment (used in tables where space was limited)
HP	Health practitioner
HPM	Health practitioner motivation
HPMS	Health practitioner motivation survey
HR	Human Relations
IPIP	International Personality Item Pool
KMO	Kaiser-Meyer-Olkin
MWU	Mann-Whitney U
OR	Odds Ratio
PA	Parallel Analysis
PAF	Principal Axis Factoring
PCA	Principal Component Analysis
PWW	Preferred Ways of Working
SCCT	Social Cognitive Career Theory
SDT	Self Determination Theory
SPSS	Statistical Package for the Social Sciences
3Ms	Missionary, mercenary and misfit
wrt	with respect to (used in tables where space was limited)

CHAPTER 1:   INTRODUCTION

There is a class of job in the Australian health industry for which the selection criteria could read:

"*Essential*: Your profession's necessary and sufficient qualifications for registration; plus you must be ready and able to care for underserved people with often high morbidity status, with basic treatment resources, while you live a very long way from home, in not always secure accommodation; required to be available 24 hours, seven days per week, while delivering competent clinical services autonomously, including early diagnosis and pre-emptive case planning, while managing a substantial caseload; excellent consulting-at-a-distance skills required to get the most from your distant consultants; intercultural communication skills and interests required, along with readiness to respond to sometimes life threatening and otherwise extremely challenging situations; being ready and able to drive long distances across isolated country, sometimes alone at night or in over 40-degree daytime heat; ability to change a 4WD wheel and to extricate a vehicle from being bogged in sand, day or night, occasionally required; undeterred by extreme climatic conditions.

Very Desirable: Skills in helping resolve conflict within and between families; in avoiding becoming indispensable (your job may not be filled while you are on short leave); in managing management at a distance, always with the good of your community members as the priority; and in enjoying your own company.

Conditions: The remuneration and conditions are fair and reasonable but most practitioners could find easier ways to match them."

While the above might be considered a parody of the very remote Indigenous community health practitioner job advertisement, it conveys what the prospective health practitioner can still expect to be confronted with, at least on an occasional basis, if she/he stays for a substantial time in the Indigenous community job in *very* remote Australia (Garnett et al 2008; Lenthall et al 2009; Opie et al 2010). This raises the question: what motivates the health practitioner to seek out, and then stay working in, such a job for a substantial time? This question provided the basis for the research questions addressed in this study.

The work motivations of the very remote Indigenous community practitioner have so far been more the subject of casual conjecture than scientific research. However the closely related subjects of recruitment and retention of such health practitioners have been the focus of considerable research attention, if not effective evaluation over the past decade (Humphreys, Wakerman, Pashen, & Buykx, 2009). This matter is addressed in some detail in Chapter 3: Literature Review.

1.1 Motivations and Very Remote Indigenous Community Work: Why they are Important

The Prime Minister of Australia reported in his 2016 "Closing the Gap" report, that some aspects of Indigenous health status, such as child mortality rates, have improved in recent years (Turnbull, 2016). However, some, such as life expectancy, had not met their targets, in spite of much investment. In addition, at the commencement of this study, the evidence as to whether the health workforce maldistribution was being overcome was inconclusive, particularly in the very remote areas (Wakerman & Humphreys, 2012). Major city health status was and still is better than that of regional, remote and very remote areas. Life expectancy continued to decrease with increasing remoteness, being seven years lower in the

very remote areas. Wakerman and Humphreys (2012, p. 49) concluded that the rural and remote populations had the greatest health needs, while experiencing the poorest access to health and community services in Australia.

The well documented high staff turnover and related low retention figures for the very remote Indigenous workplace industry is very costly in terms of human resource energy, time, money, and quality of care (Garnett, Coe, Golebiowska, Walsh, & Zander, 2008; Humphreys, Wakerman, Kuipers, et al., 2009; Pathman et al., 2000). There is evidence that working in the very remote Indigenous setting can be stressful, exhausting and both vicariously and directly traumatic. (Lenthall et al., 2009; Opie, Dollard, Lenthall, & Knight, 2013). This means that the practitioner who adapts well to the very remote Indigenous workplace will need to retain strong work motivations in the face of many tests of commitment. There is a long history of evidence that indicates that work motivations influence job satisfaction, which in turn influences retention (Borzaga & Tortia, 2006; Decker, 2008; Huntley, 1995a; Hwara, 2009a, 2009b). Therefore, it is proposed that understanding the motivations that drive the very remote Indigenous community practitioner will help the employer identify optimally motivated practitioners who remain satisfied for longer. This in turn will help address both the excessive recruitment and retention costs and the flow-on costs from inadequate very remote services.

1.2   Study Aims
In the light of the above, the primary aim was to explore and describe the nature of the work motivations of the health practitioner which contribute to seeking very remote Indigenous community work, and to explore the relationship between such motivations and length of retention in very remote Indigenous work. To achieve these aims, it was necessary to develop a health practitioner work

motivation scale, comprising subscales relevant to the very remote Indigenous community work context, among others. It was intended that the subscales could be used to formulate predictive models concerning the retention prospects of the practitioner who is contemplating very remote Indigenous community work, along with several other research and human relations applications in the health industry.

1.3   Very Remote Indigenous Community Practitioner Motivations and the Three Ms Motivational Construct

There is a work motivation construct that is often attributed to the health practitioner who chooses the very remote Indigenous community and the international aid workplaces. This construct is commonly referred to as the "Three Ms". Its origins are unclear (Stirrat 2008) but despite the absence of scientific evidence to support its validity, the Three Ms has been an enduringly popular notion (Brown, 2012; Stirrat, 2008) for a long time. It proposes that a practitioner who chooses to serve the (usually Indigenous) underserved, in very remote or other challenging and isolated environments, will be primarily driven by one or other of the following motivations:

Missionary: faith and duty based; wanting to heal or "save" the remote usually Indigenous people, while aiming to resolve own guilt (Stirrat 2012), for being more fortunate;

Mercenary: seeking to earn and save more money than could be achieved in less remote work, in the same time period;

Misfit: searching for a better sense of fit, acceptance, purpose and belonging, in an out-of-mainstream space.

The question as to which "M" the author might be, was asked of him many times in his very remote health work in Papua New Guinea in the 70s. Over the past seven years, in discussing this research with many experienced very remote health practitioners, referring to the Three Ms frequently attracted enthusiastic and knowing signs of recognition and agreement. As Stirrat (2008) observed, the construct resonates strongly with those well acquainted with the aid and development industry, just as it still appears to with those well acquainted with the Australian very remote Indigenous community health workplace. However, regardless of how well founded the construct may have been prior to the digital era in very remote Australia , it is now possibly obsolete, due to the many social and technical changes that have occurred over the past four or five decades. These might include the widespread attitude change around what is a wise and responsible professional career path in recent decades; reduced differential in monetary rewards between non-remote and very remote work; lower prevalence of faith based "callings"; and the normalising of once shunned minority personal orientations in mainstream society. Changes that have reduced practical remoteness in for example, very remote Central Australia may also have eroded any earlier bias towards one or more of the Three Ms in very remote practitioners. These include advanced electronic communication technology; user-friendly four-wheel drive (4WD) and light aircraft transport; infrastructure improvements such as air-conditioning, freezers and security equipment; improved orientation and intercultural education programs for practitioners; comprehensive remote primary health care treatment manuals and more immediately accessible clinical specialist consultant services.

The Three Ms construct does not provide a core focus for this research, however in recognition of its enduring resonance in the very remote health

industry, its relevance to the new knowledge as it emerges in this work is occasionally commented upon.

1.4 Motivation Subscales and Very Remote Indigenous Community Workplace: Potential Applications

So far there has been much more emphasis on retaining practitioners than on the initial identifying and selecting of best suited staff (Humphreys, Wakerman, Kuipers, et al., 2009). The absence of a simple, cheap and effective tool to help assess the prospective practitioner's work motivations may be one reason for this. Such a tool could assist in identifying the preferred practitioner for a given job, possibly contributing to optimal retention. It could also be useful in a number of health industry applications independent of remoteness, as outlined in Chapter 9.

Given such facts and the demanding nature of the very remote Indigenous community workplace, to build an optimally motivated health workforce there is an important step towards minimising staff turnover, enhancing continuity of care and capitalising on accumulating local knowledge.

1.5 Further Rationale

Given the above background, the question as to what drives the health practitioner to seek out and stay in the very remote Indigenous community workplace is not an idle one. It is hoped that answering it will contribute towards a more equitable and cost-efficient distribution of relevant health services across this country. These services need to feature well-coordinated, team-based primary health care and disease prevention strategies, delivered in a culturally appropriate user-acceptable fashion to optimise impact (Wakerman & Humphreys, 2012). These goals need well trained and motivated health practitioners, who can thrive on working autonomously while also being comfortable as members of an often widely dispersed multidisciplinary team.

The term "very remote Indigenous community", or "VRI community" workplace, used throughout this document, refers to the Accessibility/Remoteness Index of Australia (ARIA+) "Very Remote" classification (ABS, 2006). This classification system unambiguously distinguishes between Very Remote (VR) and all less remote workplaces.

Distinguishing between VR and remote and regional ("rural") workplaces in this study is based on the view that there is a quantum leap, not a continuum, in reduced amenity relating to usual quality-of-life expectations, between the remote and the VRI community work environments. Onnis and Pryce (2016) proposed that there are more similarities than differences between the remote and very remote workplace, Indigenous or otherwise. However, they derived this view from a four-theme management framework which did not well recognise the psychosocial, task-environmental, demand/resource and lifestyle-related differentials between the VRI community workplace and the remote workplace.

Accordingly, it is hypothesised that to thrive in the VRI community will demand unusual work-related motivations and related personal attributes. Most of the usual amenities of Australian townships are found in remote communities (using ARIA + classification), such as Alice Springs, Broome, Mt Isa, and Pt Lincoln. These include sealed roads, low cost fresh food, good quality water, mainstream standard primary and high schooling, a well-staffed hospital within easy driving distance, professionally managed swimming pools, theatre, peer support, domestic privacy, interstate bus terminals, airports and so on. Such a set of amenities is, partly by definition, not available in the VR community.

1.6   New Knowledge Provided by this Study

Describing the nature and influence of some key motivational factors that distinguish between those who choose VRI community health work and those

who do not, will provide important new knowledge for the very remote health industry. Establishing measuring scales of such motivations to help identify the patterns of motivation which predict shorter and longer retention in the VRI community workplace, will add further potentially valuable new knowledge and open up new areas for related possible research.

1.7   Some Caveats

In this study, the development of a personality assessment inventory was not intended, nor the development of a single motivation scale that would be evenly sensitive across all levels of remoteness, from major cities outwards. The complete development of the motivation subscales was also not expected to be finalised: such subscales take much time to validate and develop across various applications.

CHAPTER 2:   THEORETICAL FRAMEWORK

2.1   Introduction

The following overview provides the rationale for choice of theory used to set the scope of literature review and to underpin the method (Chapter 4) in this study. As such, it is not an attempt to review all the literature pertinent to practitioner work motivations, which is very extensive. It comprises the following sections:

2.12 Theory and Definition of Work Motivation;

2.23 Motivation and Career and Job choice;

2.34 Motivations and Influential Personal Attributes relating to Job Behaviour;

2.45 Motivations and Job Fit, Satisfaction, Engagement and Retention;

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2.2   Theory and Definition of Work Motivation

There is a plethora of literature on theories of human motivation, which some regard as one of the most difficult constructs to measure (Mutale, Ayles, Bond, Mwanamwenge, & Balabanova, 2013). The work motivation literature alone has been described as "vast.....numerous and diverse..." (Wright, 2001, p. 576). Over 100 definitions of motivation had been proposed by 1980 (Kleinginna & Kleinginna, 1981); the authors classified them into 10 categories. Over 20 years later, Locke and Latham (2004) were still putting some order into motivation theory. The theories vary in emphasis on the factors that come together to energize a person (actor) into action. Some focus more on factors

within the actor and others more on the interplay between factors internal and external to the actor, especially those of the employing organisation, with regard to work motivations. The internal factors include self-determination (Deci & Ryan, 1991) and more organic needs, wants, beliefs, values, expectancies, goal setting and attributions (Gagné & Deci, 2005; Ramlall, 2004).

The more actor-centred definitions conceptualize motivation as the energizing of behaviours aimed at reducing tension deriving from unmet felt need, in response to external opportunity to do so. There are many theories which address nuance around this general model: how the energy emerges, the relative importance and roles of the internal compared with the external factors; and what determines behavioural direction, effort and persistence. Ramlall (2004) summed them up well: "Motivational theorists differ on where the energy is derived and on the particular needs that a person is attempting to fulfil, but most would agree that motivation requires a desire to act, an ability to act, and having an objective" (Ramlall, 2004, p. 53).

2.2.1   Intrinsic and Extrinsic Motivations: Mutually Distinct?

In work motivation, the interplay between the worker and the employing organisation, as it relates to ongoing worker motivation, has attracted many and diverse theories. The influence of job design and its related characteristics; perceived equity held by the worker in the workplace; and goal setting and structuring are all included here (Gagné & Deci, 2005). Herzberg developed his intrinsic/extrinsic motivations theory by proposing that intrinsic motivations, associated with doing intrinsically rewarding work, link directly with job satisfaction (Herzberg, 1968). In contrast, he proposed that the employer-controlled external job conditions, or "hygiene factors", such as salary, delegation,

quality of supervision and workload, induced "extrinsic" motivations to work. He controversially further proposed that to simply increase external incentives to stimulate extrinsic work motivation, in response to workers' job dissatisfaction, will fail to raise job satisfaction and will risk reducing intrinsic work motivations (Deci, Koestner, & Ryan, 1999; Herzberg, 1968).

Relevant to the current study, Herzberg's (1968) theory would predict that very remote Indigenous community job satisfaction can be enhanced by increasing its intrinsically motivating elements, but not merely by increasing employer controlled inducements (such as higher pay) beyond the point that they are deemed satisfactory by the employee. The theory predicted that the best that further external incentives could do is reduce de-motivating dissatisfactions, which Herzberg did not equate with increasing job satisfaction or related intrinsic motivations. This notion was central to the dispute (Deci et al., 1999; Deci & Ryan, 1991) over whether adding more extrinsic motivators to an existing intrinsic-extrinsic motivational mix would create a cumulatively larger motivational energizing power, or actually reduce the intrinsic motivations, causing a diluting process. Gagné and Deci (2005) provided a plausible compromise with evidence that increasing external incentives can either add to, or subtract from, the total motivational energies, depending on how the external factors are perceived and processed by the worker. A typical positive processing example is: "Well at least we've been heard"; while a negative example is:"The bosses are just trying to buy us off". The phenomenon of the very wealthy entrepreneur risking much to gain even more wealth is an example of how the seeking of ever more of a once unambiguously extrinsic motivation (seeking wealth), can become instead intrinsically rewarding. Reflecting this, Cooper

(2012b) observed that extrinsic motivations will be "…..ultimately rooted in intrinsic needs and wants" (Cooper, 2012b, p. 7).

The effects of the lack of clear distinction between intrinsic and extrinsic motivators were provided by Sicsic, Le Vaillant, and Franc (2012). They reported mixed evidence, in a study with medical practitioners in rural France, concerning the apparent weakening of intrinsic motivations by the increasing of extrinsic monetary motivators (incentives) in a fee-for-service/pay-for-performance context. The quality of service suffered in various ways following the new mode of payment. That the extrinsic/intrinsic dichotomy is not a clear and distinct one required that this be accounted for in the modelling used in Chapter 4: Method.

On a similar theme, the philosopher Alain de Botton, premised that Western industry's pre-occupation with monetary incentives is misguided. He proposed that the worker is better motivated by a sense of "… furthering the Good [of the community]" (de Botton, 2015, p. 2) through work, no matter how apparently menial the job task. However, neither he nor many of the theorists appeared to account for Maslow's Hierarchy of Needs (Simons, Irwin, & Drinnien, 1987) in the intrinsic/extrinsic debate. This theory predicted that where the worker's *essential* needs were not as yet met, the extrinsic motivator (e.g. food) that was expected to meet an essential need motivation (hunger) would prevail over other intrinsic motivations, regardless of the intrinsically good feelings that the latter might offer. Cooper did account for the hierarchy of needs theory in his partial rejection of the intrinsic/extrinsic model (Cooper, 2012a).

More simply, Locke and Latham associated motivation with "…internal factors that impel action and … external factors that can act as inducements to action. The three aspects of action that motivation can affect are direction

(choice), intensity (effort), and duration (persistence)" (Locke & Latham, 2004, p. 2). Both this and Herzberg's (1968) model imply mediating influences on motivation by the worker's personality traits and associated values, attitudes, self-efficacy and other beliefs. For example, if a nurse is intrinsically motivated by the strong belief that to nurse the sick is essentially very worthwhile, and so gains good feelings from bedside nursing, this intrinsic motivation will derive from some of the nurse's trait related values and beliefs, such as "Helping the sick get well is a good thing", ahead of the daily bedside nursing tasks *per se*.

Deci and Ryan formulated Self-Determination Theory (SDT) (Deci & Ryan, 1991). This incorporated intrinsic motivation as agency of selfhood and free will, as compared with extrinsic motivation which they related to "lesser involvement of self" (Deci & Ryan, 1991, p. 238). They also emphasised three prime sources of motivation that, when met, enhance self-determination and so human wellbeing: autonomy, competence and relatedness (Ryan & Deci, 2000).

Gagné and Deci (2005) applied SDT to work motivation and advanced the intrinsic/extrinsic model by recognising that extrinsic motivation can convert to intrinsic motivation via cognitive process. For example, motivation to behave in a certain way may be internalised and acted upon in a self-determining way, not because it is expected to be rewarding now, but because of the belief that to not act now will be costly later. Common examples include: "I hate homework/injections/ the dentist/jogging, but I'd rather act now than suffer later".

In applying SDT in work motivation, Gagné and Deci (2005) proposed a self-determination motivation continuum, from amotivation, or complete lack of motivation, at one end through four stages of motivation. These ranged from the purely external and extrinsic (e.g. behaving aimed at winning a tangible reward)

to the more internalised motivation, while still involving external changes under others' control (e.g. wanting more delegations to be more effective at work, so to be recognised). The next stage of internalising originally extrinsic motivations involved their being aligned with the actor's personal values and goals, to become effectively intrinsic motivations, where the act generates good feelings in its own right (e.g. "I'll meet the deadline because I can and to save others more worry"). This model explained why increasing some external incentives (e.g. delegations) can enhance intrinsic motivations (e.g. need to feel competent and appreciated) and why increasing some external incentives (e.g. fee for service) can weaken some existing intrinsic motivations (e.g. compassion based satisfaction of treating people, overtaken by mercenary motives).

Using Ryan and Deci's (2000) needs model of autonomy, competence and relatedness, SDT predicts that the extent to which these three internal needs can be satisfied by external inducements influences how well extrinsic needs can be identified with, and so integrated within, the worker, thus raising overall motivation.

SDT provides a framework relevant to both the scale development and its later use in this study. High professional autonomy and competency factors were expected to underpin very remote Indigenous community work motivations and the role of relatedness was expected to differ from mainstream patterns.

2.3   Motivation and Career and Job Choice

Exploring the nature of the motivations behind choosing very remote Indigenous community work, and whether those motivations influence subsequent retention, involves two potentially separate elements of work motivation. One is what motivates the practitioner to make such an unusual job choice; the other is what motivates the practitioner to stay working in that unusual workplace over a

substantial period. Taking the above theories into account, the level of match between these two sets of motivations will depend on how closely the worker's prior expectancies, needs, wants, beliefs and goals about the job match the realities later discovered within it. This is assuming that the practitioner's personal circumstances remain little changed between applying for and working in the job.

2.3.1   Social Cognitive Career Theory.

Social Cognitive Career Theory (SCCT) (Lent, Brown, & Hackett, 2000; Lent, Brown, Hackett, & Brown, 2002) is directly relevant to the decision to seek a very remote Indigenous community job. It proposes that trait-related motivational cognitive patterns (e.g. "I want a job that's meaningful and helps the needy") interact with environmental and other contextual factors to lead to a sequential decision making, goal formulating and goal seeking action process.

SCCT emphasises the role of expectations in the constellation (Lai, 2011) of factors that combine to drive job choice. It also relates self-efficacy cognitions, or self-talk about personal capabilities, with outcome expectations (Lent, Brown, & Hackett, 1994). It predicts that the prospective employee will first assess the level of match, or fit, between the job's demands and his/her capabilities, providing outcome expectancies about how it will be, if appointed. It is then theorised that these cognitions contribute to the level of drive and intention to seek the job. Hence, SCCT links self-efficacy cognitions with motivation in a mediating role, which then guides career path interests, choices and intentions. In this it predicts that career intentions and their related motivations are influenced by trait-related motivational predispositions, self-efficacy beliefs and expectancies, along with the applicant's actual personal capabilities and the job's actual requirements.

SCCT was supported by various theories which related personality attribute to choice of situation (Emmons, Diener, & Larsen, 1986; Murray et al., 2005).

Emmons et al. (1986) proposed two models of person-situation interaction. Their "choice of situations" model predicted that the individual will choose or avoid social situations as a function of his/her "underlying needs and dispositions" (Emmons et al., 1986, p. 815). The second model of Emmons et al. (1986), the "congruence response model", predicted that individuals will feel greater positive and less negative affect in situations, including work, which are congruent with their personality attributes. This congruence relates to sense of person-job fit. A corollary of this is that a very unusual work setting, such as the very remote Indigenous community workplace, will require correspondingly unusual personal attributes, needs, wants, skills, expectancies and motivations, to provide the congruence necessary to elicit "positive affect" and sense of good fit.

These models are relevant to the recruitment process, which involves two key choices concerning appointment to a job: that of the employee and the employer, in a two-way contract. The above models assume that the prospective employee knows what the job situation actually involves. In reality, unless the practitioner has done the same job before, this belief will be only partly correct. It is reasonable to assume that many of the applicant's beliefs will be based on hearsay and fantasy, particularly with a first very remote Indigenous community job, unless the employer has been very frank and provided full and accurate information. This bears on ethical issues around recruiting practitioners to such a workplace (Simpson, McDonald, & McDonald, 2011).

2.3.2   Theory so far.

A central goal for this study was to identify a set of variables, including motivational indicators, that help in predicting very remote Indigenous community work retention prospects. By linking the variables of self-efficacy, expectancies and trait-related influences with the motivation to form job choice

intentions, SCCT provided a theoretical framework to support this study's aim. It supports the hypothesis that an applicant who holds realistic job expectancies, rates high on self-efficacy sensitive items (e.g. clinical skills confidence), enjoys working autonomously and is open to intercultural matters, would be more likely to stay longer in the very remote Indigenous community job than an applicant with low scores on any of these variables. The Canadian work (Macleod et al., 2008; Manahan, Hardy, & MacLeod, 2009) on the attributes required of the very remote nurse provides practical support for these theories in the context of this study.

A schema aimed at melding the theories as they apply to the role of motivations behind job choice is outlined in Figure 2.1. It portrays how internal and external factors can together propagate intrinsic and extrinsic motivation dispositions, or *potential energizing forces* awaiting activation, to produce job seeking behaviours. Their activation would also depend on a number of cognitive and other variables coming together, such as a perceived close match between motivation disposition (deriving from values, beliefs, principles) and the job's apparent culture and demands. This perceived close match would lead the prospective applicant to expect a good fit with the job. For the very remote Indigenous community job, there would also need to be grounds for a good match between motivation disposition and the demands of both living in the community and working within the employing organization's culture.

INTERNAL &   MOTIVATIONAL   JOB   PLAN /
EXTERNAL   →   DISPOSITIONS   →   OPPORTUNITY → ? ACTION?
FACTORS

INTERNAL

Traits eg autonomy, compassion;

Needs and wants eg to feel purpose, respect;

Beliefs and values, eg concerning competency, serving others;

Self-efficacy: belief in self;

Expectancies; Goals

Intrinsic

For example, towards:
Autonomy: Clinical self confidence;

Taking charge of life;

Challenge/ Adventure;

Competence:

Advancing clinical skills,

Learning inter-cultural skills;

Relatedness:

Being embraced and respected by community.

Extrinsic

For example, desire to gain:

More work delegations;

A bush lifestyle;

Savings for retirement;

Reduced "back home" obligations.

EXTERNAL
Such as:

Relationship and job freedoms;

Low stimulating lifestyle;

Large gap between Indigenous and mainstream health status.

VERY REMOTE JOB:

Will its demands fit well with practitioner's Motivation Dispositions?

YES →

NO

Intention to apply builds

Intention to apply diminishes; need to review job choice

Supportive external events increase intention

Apply for job

Figure 2.1. Internal and external factors, motivational dispositions and job choice, using the very remote Indigenous community job context for example

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2.4 Motivation and Influential Personal Attributes Relating to Job Behaviour

In Section 2.2 the linkages between personal attribute, potential motivations (motivation dispositions) and job choice were identified. This section addresses the theory relevant to being enduringly motivated within a job. SDT, as described in Section 2.2, links personality traits and related personal attributes with motivations stemming from self-determining needs for autonomy, competence and relatedness (see Figure 2.1 for examples), being sources of intrinsic motivation. As noted earlier, these variables are well suited to the modelling concerning thriving in the very remote Indigenous community workplace.

2.4.1 The trait-motivation nexus.

Motivation for this study is conceptualized as a behavioural energizing force produced within the actor by a set of concurrent internal and external influences coming together, goal focussed, expectancy driven and readily changeable. "Motivation disposition", as used in Figures 2.1 and 2.2, is used to infer a potential motivation (energy) awaiting activation to energize a given behaviour. Such a state can be very transient. In contrast, the term personality trait is used here to convey an enduring "behavioural disposition" (Mischel & Shoda, 1995) to respond consistent with the trait's description, across time and many situations.

Ajzen (1991) concluded that broad attitudes and related personality traits indirectly influence a given behaviour, by influencing factors that closely determine that behaviour, including motivations and intentions. From this he proposed his Theory of Planned Behaviour (Ajzen, 1991) which linked motivation with trait. This predicted that the probability that a specific behaviour will be performed, reflecting strength of intention to act, is the product of the sum total of a person's salient motivations, which in turn are the product of the person's

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relevant needs, attitudes, values, and beliefs, including those about personal ability to act, and others' attitudes.

However the evidence that personality traits reliably propagate trait related behaviours in the workplace has been mixed for a long time (Morgeson et al., 2007). Tett and Burnett (2003) emphasised an interactive systemic approach to considering personality attributes in workplace prediction. This model can encompass the many moderating and mediating variables that influence the quality of the person-job interplay. They proposed the motivational hypothesis that "... an individual will seek out and be satisfied with tasks, people, and organizational features affording opportunities for expressing his or her particular array of personality traits" (Tett & Burnett, 2003, p. 505). This model predicts that a trait's influence on motivation and subsequent behavioural expression can be immediate, modifiable and situational. A trait is behaviourally expressed in response to trigger situations (Tett & Guterman, 2000), which activate motivations to behave in trait related ways. For instance, the practitioner with strong rating on the trait "Novelty Seeker" will have reported thriving on new events, change, and perhaps uncertainty, to earn that rating. This trait will not be expressed continuously but will be activated in various triggering interactions (Tett & Burnett, 2003). The strong novelty seeker trait will mediate the motivations to respond to various internal and external factors, which, if triggered, together will either create the opportunity for novel experience or energise the search for it. A low rating on novelty seeker would predict a high threshold for tolerating low variation, or even an aversion to variety and change. This illustrates the complex link between trait-related motivational dispositions and the nature of behaviours involved in workplace interactions.

2.4.1.1.   Do traits reliably translate into trait related work behaviours?

In the sometimes intense debate on this matter, Tett (2003) and Ones et al (2007) strongly defended the use of personality trait measuring in predicting job behaviours. The schema presented in Figure 2.2 tracks the flow of energies between the potentially influential factors, internal and external, to the practitioner now working in a job. These point to possible very remote job related intrinsic and extrinsic motivation dispositions, along with the potential motivation activators inherent in the job and workplace demands. This schema is presented here as early modelling for the study's method (Chapter 4) used in the construction of the HPMS' 101 motivation items (in the HPMS, Appendix A). Once again, SDT's intrinsic needs trio were used in Figure 2.2 to exemplify the categories of motivation disposition that could be relevant to a practitioner working in a very remote Indigenous community. This is not to exclude additional possible categories of driving force, which would, in SDT terms, be classified as sub-categories of the three. For example, the motivation for sense of accomplishment was expected to be important in very remote retention. It could be included separately or as a category of "Competence" as in Figure 2.2.

2.5   Motivations, Job Fit, Satisfaction, Engagement and Retention

The various theories addressing career decision making, workplace behaviours and outcomes, are not mutually exclusive; motivation is common to them all. As portrayed in Figures 2.1 and 2.2, becoming disposed towards a specific behaviour (and so evidencing motivation) is the product of interplay between the worker's various attributes and the contextual and environmental factors of influence.

INTERNAL   MOTIVATIONAL   JOB   RETENTION

EXTERNAL → DISPOSITIONS → DEMANDS → ISSUES

INTERNAL

Traits eg autonomy, compassion;

Needs and wants eg to feel purpose; in charge of live;

Beliefs and values, eg concerning competency, serving others;

Self-efficacy: belief in own abilities;

Expectancies

Goals

EXTERNAL such as:

Job Demands;

Organisation Culture;

Pay level;

Lifestyle issues

Intrinsic motivators:

Autonomy: Seeking clinical self reliance, Finding sense of self- direction;

Competence: Desire to enhance professional skills;

Learning about local culture and language;

Seeking local respect.

Relatedness: Feeling part of the team.

Extrinsic motivators: Being safe; in charge;

Getting strong delegations;

Finding good Work/leisure balance.

VERY REMOTE JOB: Do its demands fit well with practitioner's Motivation Dispositions?

YES

NO

Likelihood of STAYING rises

Intensity of Engagement increases

Job Satisfaction

Job Dissatisfaction

Job Engagement reduces

Likelihood of QUITTING rises

Figure 2.2 Links between motivation dispositions and retention likelihood in the very remote Indigenous community job context as an example

Both schemata portray the linkages between the practitioner's inner demands and the job's demands. The closeness of match or congruence between the two sets of demands will strongly influence job satisfaction and job dissatisfaction (Herzberg, 1968) and associated job engagement (Gagné & Deci, 2005), in addition to person-job, person-organisation and person-community fit (Bright, 2007).

The two schemata are based on the assumption that the practitioner's motivationally predisposing personal attributes remain largely the same before and after seeking the job. That is, the motivations that drive the practitioner's seeking of the job remain similar thematically before and after being appointed.

A second assumption is that the practitioner can effectively assess, at some level of conscious awareness, the degree to which both intrinsic and extrinsic motivational dispositions are being matched by the incentives and disincentives offered by the workplace. Such incentives and disincentives will emanate from not only the job itself, but also the employing organisation and the community, in the case of the very remote Indigenous community job. This refers to how well the practitioner's and workplace's respective needs are being met and are complemented by each other, so relating to level of mutual fit.

A third assumption is that job satisfaction, person-job fit, job engagement and job retention all mutually influence each other, via a range of moderating and mediating variables (Kristof-Brown, Zimmerman, & Johnson, 2005) and by their reflexive relationships. An example of the typical reflexive relationship is the increasing influence on job satisfaction that strong job engagement can expect to generate, via the positive response from service recipients and colleagues, to further increasing satisfaction, providing a positive feedback loop. A negative

example is the effect of job dissatisfaction eroding sense of person-job fit,

especially in an isolated job, so feeding further dissatisfaction.

2.6   Public Service Motivation Theory

Public Service Motivation (PSM) was defined by Perry (1996) as the

"....predisposition to respond to motives grounded primarily or uniquely in public

institutions" (Perry, 1996, p. 1053). He initially identified six pro-social

motivational dimensions, three of which were expected to be very relevant to this

study: self-sacrifice, commitment and compassion. PSM was later defined as an

internal force that induces individuals to perform meaningful public, community,

and social service (Brewer & Selden, 1998; Westover & Taylor, 2010). PSM was

claimed to relate to why some are drawn to public service and some are not

(Bright, 2007; Perry & Wise, 1990).

Theory and practice relating PSM to job satisfaction and retention via the

mediating influence of person-workplace fit is relevant here. There is evidence

that high job-relevant motivation facilitates good person-job fit, which then

mediates job satisfaction and related longer retention (Bright, 2008; Kristof,

1996). These linkages are anticipated in both Figures 2.1 and 2.2. Prior to his

work with job fit, Bright (2007) observed that only weak direct links had been

demonstrated between PSM and public service work satisfaction and job

performance. His evidence that sense of person-job fit mediates the relationship

between PSM (as measured by the PSM Scale) and job satisfaction was relevant

to this study.

2.7   Summary

Theories of work motivation implicitly or explicitly recognise two arenas within which the invisible and inferred construct of motivation operates. A useful theory for this study proposes that intrinsically motivating factors are those which relate to aspects of the work which enhance the sense of autonomy, competence and relatedness in the practitioner. The extrinsic motivators are, by definition, externally controlled, for example by the employer, as incentives to behave in a given direction, intensity and focus, to meet job demands. The two categories of motivation are not mutually exclusive: they can be synergistic, but can also be mutually impairing.

Job satisfaction has usually been associated with intrinsically motivating work behaviours, while job dissatisfaction has primarily been associated with extrinsic motivators perceived as unsatisfactory. While there is some risk of tautology in these concepts, they signal the useful caveat: that to enhance the satisfying elements and reduce the dissatisfying elements in a job can rarely be achieved by a single external manipulation, such as increasing monetary reward above a deemed-as-adequate threshold.

While the large body of motivation theory ranges from the apparently obvious to the obscure and the very controversial, it has provided a useful foundation for the schemata presented in Figures 2.1 and 2.2, which in turn have provided guidance for developing the method in Chapter 4.

What was not well highlighted in the theory, but is evident from learning theory and practice, is that work motivations are reflexive, as described in Section 2.5 above. In very remote Indigenous community terms, this would predict that once a practitioner begins to feel dissatisfied, motivation (to put energy into the

job) reduces, leading to lower engagement and a poorer sense of fit, leading to external responses (e.g., colleagues and patients becoming avoidant). These further impact negatively on the practitioner's work motivation. The "circuit breakers" that might help de-fuse such a cycle from escalating in the less remote job, such as the opportunity to de-brief with an entirely impartial third party, will usually be unavailable in the very remote Indigenous community setting.

2.8   Guidance for Literature Review

Review of the relevant literature was made in three stages. The first was made in 2010/11 in preparing the formal proposal for this work, to selectively review motivation theory, from which the above was derived. These findings were then used to guide the scope of the main 2011/12 literature review of practitioner motivations and related personal attributes, as identified in the above review. Special focus was put on work motivations of the rural, remote and very remote health practitioner as they relate to retention. The main purpose of this 2011/12 review was to inform both the proposal for this study and the subsequent development of the HPMS, which provided the substrate for the new motivations scale.

The third stage of literature review was completed in 2016. It was more sharply focused on practitioner motivations with regard to the very remote Indigenous community context. This was to provide material with which to compare and contrast the results of this study.

Research relating to practitioners from "rural and remote" levels of remoteness was included in the reviews, along with some major city and regional findings, even though the rural/remote classification was not preferred. This was partly because much of the research merged "rural" (presumably Outer Regional in ARIA + terms), remote and very remote samples together. It was also

addressed to ensure that the final health practitioner's motivation scale would

relate to less remote as well as very remote contexts. If the reviews had been

confined to the "very remote" context, they would have been very brief indeed.

CHAPTER 3:   LITERATURE REVIEW

3.1   Introduction

This review was aimed at discovering the knowledge and knowledge gaps surrounding this study's initial research questions to inform its method preparation in 2011/12. Relevant studies published from late 2012 were summarised prior to this review's concluding summary.

The questions which guided this review asked:

    i)   What is the nature of the work motivations of the health practitioner who chooses work in the very remote Indigenous community in Australia?

    ii)   How do those work motivations influence retention in the very remote Indigenous workplace?

The intrinsic/extrinsic motivation dichotomy was used frequently in the literature reviewed, so this dichotomy was also used in considering work motivations in the review, despite its conceptual ambiguities (see Chapter 2). Three broad sources of motivation, which Deci and Ryan (1991) proposed as universally in-dwelling domains of personal need, were used to provide a broad framework for comparison of findings: Autonomy, Competence and Relatedness. Since not all motivations fit into this triad, two more classes were added: "Other: Intrinsic" and "Other: Extrinsic".

3.2   Review Methods, Scope and Terminology

The literature search was limited to publications concerning motivations and incentives associated with the recruitment and retention of health practitioners in Australia and countries comparable in socio-economic terms and extent of

wilderness, such as Canada. An exception was made to this principle in the review update 2012-2016, which reviewed some East African work on health worker motivation index development that appeared to have very close parallels to the present study. However overall, it was considered that motivations of practitioners drawn to work very remotely in impoverished, war-torn or otherwise stressed countries, such as South Sudan, Angola and Mozambique (Brown, 2012), did not parallel the Australian situation sufficiently closely to be helpful.

The term "health practitioner" referred to the registered nurse (including, but not only, the nurse practitioner), registered medical practitioner and registered allied health practitioner. The term "Allied Health Practitioner" (AHP) referred to the non-medical AHPRA registered health specialist who works with clients one-to-one, using evidence based methods of assessment and treatment. Dentists and pharmacists were included. Indigenous health workers, while recognised as health practitioners, were not included in the study due to their usually resident, not sojourn, status, which it was expected would involve very different motivation domains for work in the very remote Indigenous community. This expectation will be better able to be tested later, using some of the new knowledge produced by this study.

There was no exclusion of literature on the basis of research design. Of the extensive and potentially relevant "recruitment and retention" literature, only that which conveyed strong links between motivations, incentives and retention was included.

Literature in the English language spanning 1990-2012 was searched. CINAHL, Cochrane, EBSCO Host, Google Scholar, Health and Psycho Social Instruments, Informit: Health Rural and Remote, PsychINFO, Pub Med and

SAGE were searched to identify publications that were likely to be relevant to the Australian very remote Indigenous community setting.

Key words and phrases searched, in various combinations, included: attribute; character; characteristic; cross cultural; fit; intercultural; mercenary; misfit; missionary; motivation; scale; measure; person-organization; person-job; personality; psychometric; recruitment; retention; selection; sojourner; temperament; trait; and, turnover. These terms were chosen to reflect the scope of the research questions and were selected through an iterative process conducted over several stages.

The following specifiers were used: allied health; allied health practitioner; doctor; health worker; medical practitioner, nurse, nurse practitioner; outpost; rural and remote; remote area nurse; very remote.

Some secondary searching was made via the bibliographies of the initial findings and some grey literature was sought from various sources, including government, tertiary institutions, grey literature databases and colleagues working in the field.

3.3   Remoteness Classifications

Rurality and remoteness is classified in various ways (Wilson et al., 2009). For this study, the Australian Bureau of Statistics (ABS) ARIA+ classification (ABS, 2006) was preferred, as noted in Chapter 1. In classifying a location's level of remoteness, ARIA+ accounts for its road distance in normal weather conditions from the nearest town; the town size; and the range of accessibility of services and social interaction available. It classifies the zones into "Major City", "Inner Regional", "Outer Regional", "Remote", and "Very Remote". See Appendix A, Survey page 3, for the colour coded ARIA + remoteness classifications map of

Australia used in this study's survey. The term "rural" is not used in ARIA +. This classification was used in line with both its use in contemporary Australian very remote health literature, for example, Lenthall et al. (2010), Opie et al (2010), and its underpinning role in the Australian Statistical Geography Standard – Remoteness Area (ASGS-RA) classification. This provided the framework for the internet based DoctorConnect medical practitioner incentives scheme. Its use is also aimed at contributing towards an effective and uniform approach to defining remoteness of workplace in Australian research.

It was initially intended to focus only on literature that explicitly related to the 'very remote' workplace. However, due to its very limited volume, combined with the lack of a consistent definition of remoteness in the literature, it was necessary to broaden the scope to also include the relevant "rural and remote" body of literature. The material that related to the very remote context was identified wherever possible in this literature. Those documents clearly pertaining to less than ARIA+ 'Remote' only, were removed in the first wave of exclusion.

3.4   Findings

The literature relevant to this review's core questions is considered in three broad categories:

1. Informed Opinion: The motivations and related attributes of the effective very remote practitioner;

2. Motivation-centred Traits: Their influence on the health practitioner's choice and adaptation to the very remote workplace;

3. Recruitment and Retention: The nature and influence of motivations and related incentives in attracting and retaining the health practitioner in the very remote workplace.

3.4.1 Informed opinion: The motivation related attributes of the effective very remote practitioner.

Four qualitative studies used focus group and telephone interview strategies to obtain the opinion of practitioners experienced in remote and very remote Indigenous work, concerning the highly desirable to necessary intra- and inter-personal attributes that the health practitioner needs to thrive in the remote and very remote workplace. This opinion was reviewed here because:

a) Recommended motivational dispositions central to the recommended attributes were readily apparent;

b) It included some intrinsic motivational material, which was rare in the literature;

c) Unambiguous delineation of the very remote Indigenous workplace location was rare; and

d) Such opinion was expected to be very relevant in preparing this study's methods, which was an important purpose of this review.

Focus group feedback concerning the very remote workplaces of Northern Queensland, Australia, was obtained from 18 experienced AHPs (Thomas & Clark, 2007). Six domains of high functioning were deemed necessary to thrive in the remote and very remote workplace, as listed in Table 3.1. These are readily classified into the three essential needs-based motivational framework of Autonomy, Competence and Relatedness.

Consistent with these findings, the 26 AHPs experienced in rural and very remote Indigenous work in northern British Columbia, Canada (Manahan et al., 2009) disclosed the motivations and related attributes they associated with thriving in their very remote work, as listed in Table 3.1. Most of these remote

nurses reported some rural background and past positive rural experience. Attraction factors included the practitioner's perceptions that the community was in great need of health professional care and that remote health continuing professional education would be provided. Appetite for variety, challenge, adventure, wilderness and related recreation, and a friendly slow-paced community, were all attributed to contributing to the decision to work rurally or more remotely. These factors were readily classified into the essential needs framework in Table 3.1. Manahan et al. (2009) concluded that there is not one factor, but a collection of factors (as above), that determined retention in the remote and very remote Canadian workplace.

Two other qualitative studies also set in remote Australia and Canada, conducted a decade apart, elicited generally consistent opinion on the attributes that a nurse needs to thrive in the remote and very remote workplace. All the attributes listed have concomitant motivations so allowing for their classification by underlying essential need (Table 3.1). Howard and Ferguson (1999) found consensus among 21 experienced very remote nurses and four Aboriginal Health Workers in the Top End, Northern Territory, Australia, concerning the requisite skills and personal attributes that the effective very remote practitioner needs. These are summarized in Table 3.1.

Misener et al. (2008) reported the consensus opinion of 33 experienced very remote area nurses from Northern Canada, using a narrative style of information collection (Misener et al., 2008). These related to interpersonal and relationship building inclination and related skills (see Table 3.1). These two studies (Misener et al.2008; Howard and Ferguson 1999) had very similar findings in both content

and distribution across the three essential need domains and across the two

countries.

Table 3.1
Informed Opinion: Motivation Related Attributes Required to Thrive in Very Remote Indigenous Health Work

Publication Author (year)]	Expert opinion sample	Essential Need domains		
		Autonomy	Competence	Relatedness
Thomas & Clarke (2007):	18 AHPs experienced in very remote Northern Australia	Be self-reflective, to learn from own experience	Be flexible and organized; resilient and resourceful.	Seek to: respect, cooperate, mediate, be culturally aware and gather knowledge of community.
Manahan et al (2009):	26 remote & very remote experienced AHPs; Northern BC, Canada	Be: independent, adventurous; love wilderness.	Pursue professional remote health education opportunities to advance career; Be flexible, resourceful;	Learn to be comfortable with dual relationships; Enjoy, slow pace and friendliness;
Howard & Ferguson 1999:	21 very remote nurses and 4 AHWs, Northern Australia	Develop: Capacity for solitude; Self-knowing and self-reflective skills, to learn from own experience.	Have high level clinical skills & confidence but be open to learn; Seek to work up to boundaries competence; Let go urban mindset; Be resilient and resourceful.	Have high level verbal communication skills; ready to foster collaborative respectful relationships; Use self-patient relationship as therapeutic tool.
Misener et al (2008):	33 Very remote outpost nurses, Northern Canada	Be: Independent; enjoy own company; Enjoy challenge;	Be: Adaptable to change, calm under pressure; Able to resist the fix-it role and accept urban practices may not apply; Convey professional confidence - but not too much!	Be: Ready to Listen; Collaborative; Keen to learn about new cultures

To summarize, consensus informed opinion recommended that the very remote practitioner be ready to: embrace physical, psychological and professional autonomy; strive for professional and cultural competence, through being open to learn new ways professionally; jettison urban-origin ideas about how things should be done in the very remote setting; expect adventure; and strive for various forms of relatedness.

Relatedness involved being motivated to foster a relationship with the patient as the "primary professional tool" (Howard & Ferguson, 1999), and to collaboratively network, both within the very remote community and with distant management. Being motivated to manage exposure to others' traumatising was also recommended, since the traumatising of very remote community members is relatively common, as are limited emergency resources (Lenthall et al., 2010).

On the matter of recruitment, Misener et al. (2008) strongly recommended that distant management "screen accurately" (p. 60) prospective staff for the remote/very remote posting, and forge a collaborative relationship with such staff. Table 3.1 lists the personal qualities of the nurse that such screening could aim to identify.

While recognising these informed opinion studies' inherent subjectivity, their relatively small samples of informants, and their lack of explicit focus on work motivations, their consistent and coherent findings are valuable for later informing of method for the present study.

3.4.2   Health practitioner trait-related motivations: their influence in choice of and adaptation to the remote/very remote workplace.

The following small body of work used scales and structured surveys to explore the relationship between health practitioner motivation-centric personality

traits and remoteness of workplace. The surveys were administered in hard copy or net-based form, without supervision.

The possibility that medical practitioners who choose remote or very remote work in Australia differ in predictable ways from their urban peers in one or more motivation centred personality traits was explored in three studies published in the period 1992-2012. The results are summarised in Table 3.2.

Price and Goldman (2006) used the Sensation Seeking (SS) Scale and the broad ranging Personal Views Survey (PVS-111) of attitudes, along with a personal details questionnaire, to compare 140 remote medical practitioners with 369 urban general medical practitioners in New South Wales and the Northern Territory. They used the Rural, Remote and Metropolitan Areas (RRMA) remoteness classification system Levels 6 and 7, which are similar to ARIA+ "Remote" and "Very Remote" areas. Controlling for age and gender, they found that remote/very remote practitioners rated themselves significantly higher (p< .001) in the Sensation Seeking (SS) trait than did urban practitioners. A high SS rating conveys preference for "…varied, novel, complex, and intense sensations and experiences, and the willingness to take… risks for the sake of such experience" (Zuckerman, 1994, p. 27). However the high SS score can also reflect being "socially disinhibited" and "susceptible to boredom" (Zuckerman, 1994). That a single high score on such a trait measure can reflect such potentially more and less desirable tendencies in the very remote context complicates score interpretation concerning the practitioner's approach to the job. Price and Goldman (2006) proposed that the positive SS qualities could be adaptive in remote/very remote practice, where good risk management and well managed assertiveness help connect with remote communities (Price & Goldman, 2006).

Expert opinion (Table 3.1) concerning desirable qualities for remote/very remote work support this hypothesis, but a high SS score clearly does not guarantee such positive qualities. As with all such ratings, such a score should be interpreted by someone trained to do so and never used as a sole indicator. That the SS trait has been shown to be elevated in those who migrate (Winchie & Carment, 1988) also needed to be taken into account. The remote/very remote sample was biased mildly towards doctors of overseas origin and training, which therefore could have biased the results towards higher sensation seeking, independent of any direct link between remoteness of workplace and sensation seeking motivations.

The "psycho-biological profiles" of rural and remote medical practitioners in southern Queensland were explored by Eley, Eley, Rogers-Clark, and Young (2008) and Eley, Young, and Przybeck (2009). Their pilot involved 13 rural and remote medical practitioners (Eley, Young, & Shrapnel, 2008) using the 140 item Temperament and Character Inventory Revised (TCI-R 140) (Cloninger, Svrakic, & Pryzbeck, 1993). The aim was to "…describe how individual …temperament … and character … traits allow GPs to flourish or fail in rural medicine" (Eley, Eley, et al., 2008, p. 12). Their samples were classified also using the RRMA classification's levels 5-7, now regarded as outdated and unsatisfactory for health research purposes (McGrail & Humphreys, 2009). This classification does not include the term "Very Remote", the equivalent of which is incorporated in the RRMA's Level 7. As observed earlier, this lack of differentiation between very remote and less remote was not satisfactory for the present study's purposes.

The rural and remote practitioners scored comparatively highly in the traits of persistence, self-directedness and cooperativeness and low in self-transcendence

(proud, objective). They rated more diversely on novelty seeking and reward dependence (warm and dedicated), with some evidence that General Practitioners (GPs) who intended to leave rural/remote practice imminently rated significantly higher on the "Harm Avoidance" trait than those staying.

Eley et al. (2009) followed up with a cross-sectional study using the TCI-R 140, with 120 medical practitioners in rural and remote Queensland, Australia (Eley et al., 2009), and 94 urban general medical practitioners (see Table 3.2). The regional and mixed remote GP sample rated themselves significantly higher ($p<$ .01) than the urban sample in Novelty Seeking, which can be associated with exploratory, curious, impulsive, extravagant, and enthusiastic approaches to life. They also rated themselves significantly lower ($p < .04$) than the urban GP sample in Harm Avoidance; low scorers tend to be more relaxed, optimistic, confident, outgoing, vigorous, and risk tolerant, compared with the norm. These two motivation related ratings were independently predictive of remoteness classification of workplace (as was spouse's "rural" origin). The urban sample provided a low response rate, which may have biased that sample towards the higher Cooperativeness rating. Eley et al. (2009) cautiously welcomed the potential in these findings for use in counselling medical students in career choice. However, due to the complexities in interpreting the TCI-R 140 scale score meanings, any such use would need to be provided by an expert in use of the TCI-R 140.

In summary, the use of different remoteness classifications and lack of differentiation between less and very remote levels of remoteness, the pilot status of one of the three studies and the various possible meanings for score extremes on the TCI-R, all impaired the value of these three motivational trait studies in the

context of this review's interests. However, they did indicate the need to consider

novelty, variety and sensation seeking in preparing this study's methods.

Table 3.2
Trait-Related Motivation and Urban, Rural and Remote Medical Practitioners

3.4.3 Recruitment and retention: How best to attract and

Author; year; Country of origin	Study goals	Methods	Sampling	Outcomes	Essential need that motivation measure pertains to	Comment
Price and Goldman; 2006; unpublished; Australia	Explore trait differences between remote and urban medical practitioners (GPs)	Quantitative; used structured survey (PVS-111) and Sensation Seeking scale (SS); Controlled for age; gender	369 Urban and 140 Remote medical practitioners (response rate 37.9%)	Remote/very remote GPs higher in SS (p<.001) and related subscales;	Sensation seeking: AUTONOMY	Unpublished; Merging "remote" and "very remote" samples;
Eley et al. 2008, [ref]; Australia	Explore if rural and remote medical practitioners differ from urban med practitioner on "psycho-biological" personality profiles	Mixed method; use of "psycho-biological" Temperament and Character Inventory (TCI-R 140) plus semi-structured interview	13 medical practition-ers: 8 RRMA7 (remote or very remote); 3 RRMA 6 (Remote); 2 RRMA 5 (regional).	Rural/ remote GPs "very high" on Self Directed-ness, Caring, Directive, Cooperative Those intending to leave rural/remote higher on Harm Avoidance.	Self Directive: AUTONOMY; Caring, cooperative: RELATED-NESS Harm avoidance: COMPET-ENCE (inverse);	Pilot status only; v small sample; Use of RRMA a limitation. High trait scores convey various meanings, preventing certainty in conclusions.
Eley et al. 2009 [ref] Australia	As above	As above	120"Rural" GPs and 94 urban GPs	Rural/remote GPs higher on Novelty Seeking ($p<.01$); lower in Harm Avoidance ($p< .04$); female GPs higher on Reward dependence; older GPs lower than younger ones on Reward Dependence ($p< .001$)	Novelty seeking: AUTONOMY Harm avoidance: COMPET-ENCE (inverse) Reward dependence: RELATED-NESS	"Preliminary work"; rest of above applies. TCI has controversial conceptual foundation; Lack of evidence linking trait differences with length of stay in rural, remote or v remote

retain the effective very remote health practitioner?

There is a large body of research that addresses various aspects of the recruitment and retention of allied health, medical and nursing practitioners in the rural, remote and very remote communities of Australia, Canada, the USA and eastern Africa. Much of this was canvassed for this review in the inclusion/

exclusion process. In total, over 40 papers were reviewed, from which five

substantial papers were selected for detailed analysis, based on their thorough

reviews of the existing literature relevant to the present study. This focus on the

role of work motivations in the pursuit of improved recruitment and subsequent

retention in the very remote workplace can be justified on both strong continuity

of service and economic grounds. It has been estimated that enhancing retention

in the remote and very remote workplace can potentially reduce staffing costs by

5 to 10 times (Russell, McGrail, Humphreys, & Wakerman, 2011).

Only a small proportion of this literature was directly relevant to intrinsic

motivational factors that drive the practitioner to choose, and then stay in, the very

remote Australian Indigenous workplace. This was somewhat surprising since

intrinsic motivations are those most frequently associated with job satisfaction,

which in turn is consistently shown to correlate with staying longer in the

remote/very remote workplace (Betkus & MacLeod, 2004; Manahan, 2009;

Manahan et al., 2009).

The extrinsic motivating incentives intended to attract and retain remote staff

gained most attention. Theory and practice suggest that extrinsic incentives are

more influential in reducing job dissatisfaction than enhancing job satisfaction

(Herzberg, 1968). The small group of studies which were focussed on the

influence of both intrinsic and extrinsic motivations on recruitment (very few) and

retention in the remote and very remote work locations were selected for attention

in this review. Had the selection criteria stipulated "very remote" only, this review

would have been very brief. The following three reviews concerning motivation,

recruitment and retention of the medical practitioner and the AHP, in the rural,

remote and very remote workplace, were selected on the basis of their strong

relevance to the research questions and their thorough and timely representation of large bodies of literature of potential relevance to this study.

3.4.4   Review concerning how important CPE is as an incentive to maintain remote practitioner retention.

The question "How important [to health practitioner retention in the rural and remote health workplace] is ongoing education and training?" was addressed in a substantial report in 2007 (Humphreys et al., 2007). From the detailed review of 25 of a possibly relevant 278 documents, the authors identified evidence for those factors which contributed to medical practitioners' stay or leave decisions in rural and more remote practice, some of which related to this study's research questions in their motivational implications. They listed the factors along a continuum of modifiable potential, from the relatively unmodifiable "external", or physical, environmental, climate and infrastructure factors surrounding the workplace, to the social/ relational factors, such as family and individual needs, aspirations and interests, to the readily modifiable "professional" incentive factors, such as job description, remuneration, supports and work arrangements. They classified the incentives "to leave" the rural/remote job as deficits in the work arrangements and in lack of meeting family and individual needs. The latter are consistent with the notion that the remote appointment involves not just the practitioner but the whole family unit, where applicable. The role of work arrangements in the decision to leave is consistent with the central role that job dissatisfaction plays in that decision (Manahan et al., 2009). Such dissatisfaction is usually attributed to deficits in extrinsic motivational factors, being in effect workplace disincentives (Herzberg, 1968). The matter of pay satisfaction/dissatisfaction is often considered separate from work conditions in this context: Betkus and MacLeod (2004) and Garnett et al. (2008) found pay dissatisfaction rated higher as a reason

for leaving remote work than job dissatisfaction deriving from other workplace conditions.

Humphreys et al. (2007) derived the following probable "stay" encouraging factors from their review: the building of professional autonomy; supporting professional skills and related opportunities to learn; providing good working and network relationships; fostering the ability to care for others; and lifestyle. Except for lifestyle, all these intrinsic motivations are frequently associated with job satisfaction (Kamien, 1998) and they matched well the essential needs framework of Autonomy, Competence and Relatedness.

Where continuing professional education (CPE), continuing professional development (CPD) and/or continuing medical education (CME), produces feelings of satisfaction and personal growth, it is intrinsically motivating: the worker will seek more of it. Humphreys et al. (2007) found limited evidence to demonstrate that CPE/CPD makes a direct substantial contribution to enhancing retention. They concluded: "… it [CPE] does appear to be very important indirectly in affecting the propensity of employees to leave" (p. 35). They proposed that the practitioner trades-off between the positive feelings (incited by intrinsic motivators, such as well-designed face-to-face CPE), and the negative feelings incited by extrinsic de-motivators, or dissatisfiers, when deciding to stay or go. They cited distance management as a prime source of dissatisfaction, as did Lenthall et al. (2009). They recommended that CPE needs to be tailored to the practitioner's profession, job needs, career stage, age and a number of other variables, then "packaged" (p. 40) along with other potential incentive measures. This was consistent with the World Health Organisation (WHO) recommendation (Dolea, Stormont, & Braichet, 2010) that a mandatory workplace situation

analysis would ensure that interventions, including incentives, are well tailored to optimise the promotion of appropriate recruitment and adequate retention. Humphreys, Wakerman, Pashen, et al. (2009) concluded that while remuneration was not the single dominant extrinsic incentive variable, it must be included in the package and perceived as "realistic and competitive remuneration" (p. 27).

The limitations in the very wide range of research material which Humphreys et al. (2007) reviewed included: the chronic failure to distinguish between recruitment and retention; the often poor definition of what constitutes CPE, CME and CPD; the lack of benchmarks and controls associated with evaluating potential retention-enhancing intervention efficacy; the adequacy of systematic review methodology for the task; and the wide variation in the methods used to research the subject. The review scoped studies both in and beyond Australia, which risked diluting findings that may apply uniquely to the Australian very remote health workplace. The review could not distinguish between remote and very remote workplace studies, nor often between rural and more remote workplaces.

Taken overall, the Humphreys et al. (2007) review supported the inclusion of CPE-related motivational elements in the devising of a practitioner's motivation measuring instrument for this thesis, especially one aimed at being relevant to the remote and very remote practitioner. However, their findings emphasised the potential value of the present study in clearly differentiating between the very remote and less remote practitioner, with regard to the nature and influence of work motivations. In further support of the present study's *raison d'etre*, Humphreys et al. (2007) observed: "A key aspect at the interface of recruitment and retention is appropriate selection of workers" (p. 40).

3.4.5   Enhancing remote/very remote practitioner retention: what works?

Wakerman, Humphreys, et al. (2009) observed that the "Inverse care law" (Hart, 2000), still applies in Australia. This "law" predicts that access to good health care varies inversely to the needs of the target population, such as the remote and very remote population (Wakerman, Humphreys, et al., 2009). They recognised this as a measure of failure in policy and progress in addressing the maldistribution of quality health services across Australia, while noting the lack of empirical evidence for the reasons behind such failure.

A 2010 WHO report found only weak evidence that access to health workers in rural and remote locations was improving across the world through, for example, attempting to improve retention of health practitioners (Organisation), 2010). In this context Humphreys, Wakerman, Pashen, et al. (2009) reviewed the evidence as to "What works?" with regard to improving retention. They identified 20 from 193 possibly relevant publications which met their inclusion criteria, including the need for clear reference to "retention" and at least one listed intervention trial to promote retention (Humphreys, Wakerman, Pashen, et al., 2009). They listed 12 different measures or indicators of retention used in the literature, including mean and median lengths of time in current position, stability, turnover rate, vacancy rate, and attrition. They also noted that recruitment and retention are entirely different, but often not well differentiated in the literature. They concurred with Kamien (1998) that the recruiting, or attracting and selecting, of the practitioner commences very far from the remote and very remote workplace and involves very different people, processes and even motivations, compared with the retaining of the practitioner, which happens within the remote workplace and so involves different operational people. Wakerman, Humphreys,

et al. (2009) noted that rigorous staff selection, ensuring the accumulation of an appropriately skilled remote workforce necessary for effective primary health care, is also an effective retention strategy. These observations support the rationale for the present study.

Humphreys, Wakerman, Pashen, et al. (2009) provided evidence that financial incentives are less effective where salary rates are at least adequate, such as in Australia, and are rarely the single compelling reason to stay or go in the remote Australian workplace. They repeated their earlier conclusion (Humphreys et al., 2007) that the effective use of incentives to extend retention would require the multi-faceted, flexible, "bundled" collection of retention incentives and other strategies. They recommended a retention fostering framework including appropriate selection, effective relief management and related anti-burnout measures, fair mandated service arrangements, suitable living and working infrastructure and maintenance, including accommodation, along with workplace incentives including "realistic and competitive remuneration" (Humphreys et al., 2007, p. 28), and an effective work team environment. Concerning intrinsic motivators, they recommended the need for a validating workplace that recognises professional effort and supports autonomous functioning and career development, along with significant-other/family care assistance. The need for a flexible and creative approach to incentivising was again emphasised, to complement the very diverse task environments encountered across the range of workplace remoteness. They concluded "…there is a strong need for well-designed and rigorously implemented evaluations of retention strategies" (Humphreys et al., 2007, p. 29), which they exhorted should be planned for in the early design stages of any retention strategy development.

While the possible extrinsic incentives and related enticements were recognised as modifiable, the few intrinsic motivations cited, such as some family relational needs, were referred to as "unmodifiable". However, they observed: "There is evidence that 'matching' health professionals and their families to communities results in improved retention" (Humphreys, Wakerman, Pashen, et al., 2009, p. 26). Effective matching would require that intrinsic motivations were also gauged early in the process, to enhance job satisfaction and thus retention (Manahan, 2009; Manahan et al., 2009; Pathman, 2009), while minimising early job and place dissatisfactions deriving from unrealistic and poorly informed initial expectancies.

Consistent with the above, developing a reliable and valid instrument to better gauge key intrinsic and extrinsic motivations will help better "match" practitioner with workplace, and so enhance retention rates. It is very likely that the current lack of such an instrument to help assess such motivations of the health practitioner has contributed to the comparative lack of focus on them.

Based on the Humphreys, Wakerman, Kuipers, et al. (2009) findings, the prospective practitioner who stays remote for a substantial time will be driven by a mix of complementary intrinsic and extrinsic motivations. This is consistent with the theory discussed and portrayed in Chapter 2, Figures 2.1 and 2.2. Motivations will first energise the approaching then securing of the very remote job (as in Figure 2.1). Then in the retention phase, the practitioner's ongoing work motivations will influence the state of balance between job satisfactions and job dissatisfactions, among other factors, as portrayed in Figure 2.2.

While the comprehensive Humphreys, Wakerman, Kuipers, et al. (2009) review did not produce a checklist of motivations which correlated strongly with

retention in the very remote setting, it did strongly recommend processes to follow, trial and evaluate "what might work". It enunciated the deficiencies in the literature and found a dearth of studies directly relevant to this present study.

3.4.6   The influence of work related motivations in the AHP's recruitment and retention.

In this very relevant review, Campbell, McAllister, and Eley (2012) noted that "....almost no literature has looked at the motivation of remote and rural AHPs from the perspective of extrinsic and intrinsic motivation" (p. 3).   They identified 35 of 105 potentially relevant publications pertinent to their aim, which was to first identify what the literature describes as "… the incentives that motivate AHPs to work in remote and rural areas" (p. 2), and then to test whether those incentives were classifiable into a framework that could help address the AHP workforce maldistribution across Australia. They defined motivation as the "…the reasons beyond personal traits, that drive an individual towards a goal" (Campbell et al., 2012, p. 2). This is one of several definitions for "motivation" used in the practitioner recruitment and retention literature. Using Herzberg's (1968) intrinsic/extrinsic motivations model, they thematically categorized 20 extrinsic and 18 intrinsic incentive types, from a total 246 influences mentioned in the 35 publications. Of the 18 intrinsic incentives, they assessed 11 as positively influential (see Table 3.3.) and seven as negatively influential (disincentives; see Table 3.5).

Table 3.3

Positively Influential Intrinsic Incentives Identified By Rural and Remote AHPs

Frequency of mention: (1=most frequently mentioned)	Essential Need domains			
	Autonomy	Competence	Relatedness	Other (intrinsic)
1	Autonomy			
2			Community connectedness	
3	Challenge			
4			Teamwork	
5		Desire to serve in area of need		Desire to serve in area of need
6		Career fast-track		
7		Extended professional role		
8			Client relationships	
9		Feeling valued		
10			Feeling trusted by community	

It is evident from Table 3.3 that each influence in the top 10 most frequently mentioned positive influences derived from one of the three essential needs referred to throughout this review. The findings are broadly consistent with those of the trait-related intrinsic motivations (see Table 3.2) and Informed Opinion (see Table 3.1), with all three essential need based motivations being well represented in each case. Desire to serve in an area of need is listed twice in Table 3.3 to recognise that it could derive from either or both competence and other important intrinsic need bases, such as compassion.

The positive extrinsic incentives

The five most frequently mentioned positively influential extrinsic

motivational factors by AHPs in the Campbell et al. (2012) review are listed in

Table 3.4 under the three essential needs framework.

Table 3.4
Most Mentioned Extrinsic Positive Incentives for Rural and Remote AHPs

Frequency of mention: (1= most frequent)	Essential Need domain			
	Autonomy	Competence	Relatedness	Other: extrinsic
1				Rural lifestyle
2		Diverse caseload		
3		Broad experience		
4			Nearby family	
5			Multi-disciplinary team	
6				Sound financial reward
7		Cross cultural env't		Cross-cultural env't
8				Small caseload

Rural lifestyle, diverse caseload and exposure to broad experience were the

three most frequently mentioned positive influences with regard to working in the

rural and remote setting. The Relatedness needs-based influences of having family

nearby (when applicable) and membership of an effective team were the most

mentioned positive influences concerning human relations. Both remuneration

and "cross-cultural" work environment were the next most mentioned as positive incentives.

The intrinsic disincentives to stay

Table 3.5 shows the seven most frequently mentioned negative influences (all intrinsic disincentives) with regard to the decision to stay or go, across the 35 AHP studies.

Table 3.5
AHPs' most frequently mentioned negative influences

Essential Need domain

Frequency of mention: (1=most frequent)	Autonomy	Competence	Relatedness	Other (intrinsic)
1		Overwhelmed		
2		Feeling work not valued by community		
3			Lack of community acceptance	
4				Increasing feelings of emotional exhaustion
5	Lack of autonomy			
6		Fear of de-skilling		
7		Decreased feelings of personal accomplishment		

The most frequently mentioned disincentive theme was the Competence needs- threatening feeling of being "Overwhelmed", which could also erode a

sense of Autonomy. This term conveys the feeling of being very under-resourced to meet job demands, due to lack of skills, equipment, time and/or professional support.

Except for fear of de-skilling, the rest of the intrinsic disincentive influences were Relatedness need based: feeling not accepted and not valued by the host community, which could also relate to Competence need. The latter two disincentives suggest that the AHP was frequently not well inducted into the community, did not fill a well-respected niche and did not feel good "community fit". Lack of autonomy was fifth most frequently mentioned disincentive, consistent with the high incentive value of feeling positively autonomous, in Table 3.3. Decreased sense of personal accomplishment, ranked seventh, suggested feelings of job dissatisfaction.

The extrinsic disincentives to stay

The 20 most frequently mentioned extrinsic influences included 12 disincentives. The three most frequently cited of these disincentives included poor access to professional development (CPD), professional isolation and insufficient supervision, all being Competence need based. The next five disincentives reflected a "too much work, not enough pay or professional support" theme.

Campbell et al. (2012) referred to a dominance of extrinsic disincentives, suggesting that this could reflect pervasive AHP job dissatisfaction, in turn reflecting significant risk of widespread intention to leave the rural/remote work arena, at the time of surveying. They exhorted health industry management to address the modifiable disincentive factors as a priority. They also warned that challenge-related intrinsic motivations would only be positively influential over

an optimum range, beyond which added challenge could become overwhelming. Concerning the novelty seeking motivation, they referred to Hall, Garnett, Barnes, and Stevens (2007) findings that dentists, who cited "novelty" as a major motivation for seeking work in the (urban and remote) Northern Territory, tended to stay for a shorter time there than those who did not rate novelty seeking as a major motivation. This was consistent with later findings in this review concerning elevated novelty seeking motivations.

Campbell et al. (2012) did not clearly differentiate between very remote, remote and "rural" practitioners. Because 9 of the 36 publications related to North America, this may not have been possible due to lack of equivalent remoteness classifications. However, it meant that it was not possible to compare results between very remote, remote and less remote AHPs. As in most of the literature, recruitment and retention were referred to throughout as a single process. These limitations demonstrated the complexity of researching practitioner motivations, even at the level of counting and classifying mention of "reasons" for workplace location choice across studies. However, the review contributed a substantial amount of motivation-related information from an array of research of very diverse focus and quality. This led to some clear messages for the remote health industry. It also affirmed the tentative indications produced in Sections 3.4.1-3 concerning motivational factors relevant to this study's research questions. The Autonomy/ Competence/ Relatedness framework was again useful in classifying this AHP review's results, which later helped inform Chapter 4: Method.

3.4.7 The benchmark study.

Garnett et al. (2008) produced a comprehensive study of the motivational factors that influenced 156 remote area nurses' decisions to pursue, stay or leave the remote and very remote workplace in the Northern Territory (NT) of

Australia, including 84 separations over 2006-2007. In focus groups and surveys, nurses gave reasons ("motivations") for coming to, staying in, and leaving work in the NT workplace at several levels of remoteness. For each of the three movement variables, approximately 40 mutually independent motivational themes were identified.

The workplaces represented by the samples in this study were listed as "Hospital; Midwives; Community health; Remote". Community health "Remote" nurses were all those non-hospital and non-town based community health nurses outside the Darwin city region. All of the remaining NT, except Alice Springs and Katherine and a relatively small radius around each of them, are "very remote" in ARIA+ terms; therefore, the majority, and possibly all, of the "remote" samples in Garnett et al.'s study were "very remote" in ARIA+ terms. The review clearly distinguished between recruitment and retention, which added to its benchmark status.

Early motivational factors in considering very remote work.

The first 10 of the 40 most frequently mentioned positive motivating factors in considering very remote work found by Garnett et al. are listed in Table 3.6. Consistent with earlier tables, the motivating attractions have been classified into the three essential need domains and "Other/Intrinsic; Other/Extrinsic". Table 3.6 shows six of the seven most frequent motivating expectancies were related to Competence needs. There were no Autonomy or Relatedness need based expectancies, indicating that neither of these domains was of high priority in nurses' *initial drive* towards very remote work. The motivating expectancies that ranked equal fifth and eighth to tenth, all related to external contingencies, belonging in the Other/Extrinsic motivating column. The seventh ranked

expectancy, Experiencing Indigenous Culture, is a motivational factor rarely
mentioned so far in this review. It could derive from Competence needs and/or
from Other/ Intrinsic needs, depending on whether nurses' interests were
professional-skill driven, curiosity driven or, most probably, some of both.
Financial incentives were rated only ninth of 10 and monetary based job
conditions, such as subsidised accommodation, were rated tenth of 10, as initial
motivators to very remote work.

Table 3.6

Nurses' most frequently cited Motivations for choosing Remote and Very Remote work

Incentive ranking 1= highest	Autonomy	*Essential need Competence*	*Related-ness*	*Other/ Intrinsic*	*Other/ Extrinsic*
1		Opportunity to use a wide range of skills			
2		Opportunity for new experiences - to learn new skills			
3		Work with Indigenous people: eg to learn new skills and serve the underserved			
4		Satisfaction from providing important high need service: proof of competence;			
5		CPE/CPD opportunities			Ready Job Availability
6					
7		Experience Indigenous culture eg to enhance skills, learn language		Experience Indigenous culture eg satisfy curiosity	
8					Attraction to natural remote environment
9					Financial incentives
10					Job Benefits eg subsidised housing

Garnett's paper provided evidence that expected career advancement was associated most strongly with longer very remote retention across the NT. However, this motivator did not rate in the top 10 for either very remote or less remote workplace nurse groups. The expectation of opportunities for CPE was the initial motivator most associated with reduced retention in the very remote setting. This suggested that either the provided CPE did not meet expectations in the very remote setting, or perhaps the felt need for CPE before appointment was a sign of not yet being ready for the very remote workplace. Alternatively, it was a combination of both these possibilities. Researching this further could produce strong direction for very remote recruitment policy and procedures.

Comparing the very remote nurses' top 6 motivating expectancies to seek very remote work (see Table 3.6) with the Informed Opinion's most recommended motivational attributes of the very remote practitioner (see Table 3.1), the latter were well distributed across the three essential need domains while the former were Competence needs dominated. Neither Autonomy nor Relatedness need based motivations reached the top 10 most frequently cited incentives to seek very remote work.

There is a possibility that in many of the studies reviewed, the recall of expectancies was influenced by: the passage of time and biased by later events; lack of pre-appointment knowledge of what the first-time NT appointees could reasonably expect; and some bias from the fact that the surveys' respondents were successful appointees, with no input from unsuccessful ones. However, the thematic consistency of the predominantly Competence based attractants is noted,

and is compared with motivational factors for staying and leaving the very remote setting as follows.

Motivations associated with staying in very remote work.

Garnett et al. (2008) ranked the 40 motivational factors that were associated with choosing to stay in very remote work in order of frequency of appearance. The top 10 are listed in Table 3.7.

Table 3.7
Top 10 most frequent Reasons for Staying in the Very Remote Indigenous community workplace

Incentive ranking: 1 = most important	Three essential need domains			Other	
	Autonomy	*Competence*	*Relatedness*	*Intrinsic*	*Extrinsic*
1	High sense professional independence, responsibility				
2		Contributing to Indigenous health			Contributing to Indigenous health
3		Opportunity to work very remote			Opportunity to work very remote
4		Clinical variety and challenge			
5			Sense of community		
6			Relationships with colleagues and patients		
7					Natural environment
7					Income
9		CPE/CPD opportunities			
10					NT Lifestyle

The motivators for staying (Table3.7) were more evenly distributed across the three essential needs than the attractant motivational factors in Table 3.6. In Table 3.7 the Autonomy needs based motivating factors emerged strongly; they appear to be "discovered" as intrinsically satisfying once working in the very

remote Indigenous job. The next three most frequently ranked motivators were Competence needs based, with the fifth and sixth ranked motivators being Relatedness needs based. Community relatedness motivations also emerged when in the job, and were not recalled as being influential in the earlier contemplative recruitment stage. Three of the four lower ranked motivators were extrinsic, relating to environment, pay and lifestyle.

Competence related CPE opportunities were the ninth most frequently mentioned motivation for staying, compared with their fifth rating as most influential attractant to seek very remote work. Given the mixed evidence (Humphreys, Wakerman, Pashen, et al., 2009) that obtaining advanced clinical skills is a strong motivator for nurses in very remote health work, and the large investments in providing CPE/CPD, the reasons for this apparently reduced importance of CPE as time in the job passes, deserve careful consideration.

The retention motivating reasons are generally consistent in rank and nature with the attributes recommended by Informed Opinion (see Table 3.1), particularly concerning Autonomous need, and also with some of the motivation-centric trait findings (see Table 3.2) concerning challenge and variety. The motivation to make a contribution to Indigenous health was the second of all most frequently mentioned incentives to stay (see Table 3.7) and third most frequently mentioned for being attracted to the very remote job (see Table 3.6). Yet it received little emphasis in the Informed Opinion recommendations reviewed earlier and was in no way evident in the motivation-centric trait work.

These findings suggest that the priority motivating influences for *seeking* very remote work differ more in order of influence than in essential nature, compared with those that keep the nurse in the job. The main changes are the

increased influence that high professional autonomy and the appreciating of

relatedness that develop in the workplace, in the decision to stay.

Motivations associated with leaving the very remote workplace.

The 10 most frequently attributed reasons for nurses leaving the NT very

remote workplace all related to external physical variables.

Table 3.8
Reasons for leaving the Very Remote Indigenous community workplace

Dis-incentive	Three essential need domain			Other	
	Autonomy	*Competence*	*Relatedness*	*Intrinsic*	*Extrinsic*
1					Lack of management support
2				Burnout	Demand / resources imbalance
3			Isolation impairing relatedness		Isolation/ distance from everywhere
4			Family/social matters		
5					Better career opportunities elsewhere
6					Excessive workload
7					Slow rate of management innovation
8		Poor access to CPE impairing sense of skills growth			Poor access to CPE/CPD due to time limitations
9					Desire to travel
10					Small community limitations: social, consumer

The most frequently cited disincentives to stay in the very remote workplace

(Table 3.8) included: lack of support from management; stressful work

environment; excessive workload; slow rate of creative change in the workplace; and problems with accessing professional development. These reasons are all directly open to management control or influence, requiring varying levels of creativity to address. For instance, problems in accessing CPE were particularly disappointing, given its high attractant and moderately strong retaining ratings (Tables 3.6, 3.7). Addressing such problems is clearly a priority.

Three reasons were practitioner specific: perceived better career opportunities elsewhere; desire to travel; and family and social matters. All these factors would probably increase in attractiveness in direct proportion to increasing job dissatisfaction, caused by one or more of the above seven disincentives to stay.

Garnett et al. (2008) found that being motivated to work in the very remote NT by the prospect of having a working holiday, gaining new experiences or exposure to Indigenous culture for its own sake, all correlated with lower nurse retention. Due to their shared novelty seeking content, these findings cast doubt on the retention fostering value of strongly elevated novelty or variety seeking ratings at the selection stage.

It is notable that the top three ranked reasons for leaving very remote work (see Table 3.8) found by Garnett et al. (2008) were very similar to three of the major stressors identified in independent NT based studies concerning stress and the very remote area nurse. (Lenthall et al., 2010; Lenthall et al., 2009; Lenthall et al., 2011; Opie, Dollard, et al., 2010; Wakerman, Opie, et al., 2009). These disincentives common to these studies can be summarised as distant management issues, job demand/resource imbalance, and personal or professional isolation.

The Garnett et al. (2008) study went beyond listing frequencies of mention of reasons for seeking, staying and leaving very remote work with total length of

stay in very remote work. Their use of linear regression to establish and compare the relative strengths of the identified incentives and disincentives provided a wealth of information on which to base working hypotheses for later testing. It also further informed the method for the present study.

3.5   Literature Review addendum: Some notable relevant works 2012-2016.

The literature in the period 2012-2016 concerning work motivations of very remote health practitioners was searched using CINAHL, Informit Health, Informit Indigenous and article reference lists. Email alerts concerning potentially relevant articles were also obtained from the Journal of Rural and Remote health throughout the period. An extensive review of dental practitioner work movement motivations and a set of studies in East Africa were selected for this review based on their apparent close similarities to the present study.

3.5.1   Remote Dental practitioner motivations in choosing rural work.

An extensive systematic review of the literature concerning motivational factors associated with the dental practitioner choosing, then staying in, the "rural" workplace was published in 2014. Compared with medical practitioners and remote area nurses, there are very few dental practitioners' *resident* in the very remote setting, and then usually resident in very remote towns like Tennant Creek, NT. Very remote Indigenous communities are usually serviced by visiting dental practitioners. Therefore, it is very unlikely that a significant proportion of the review participants were very remote resident practitioners or that significant statistics of difference between very remote and less remote residents could be produced. However, a comparison with the earlier reviews of health practitioners' influences was possible, based on the assumption that the two groups' less than very remote distributions were comparable.

The review involved 16 papers drawn from an initial 519 potentially relevant papers (Godwin, Hoang, Crocombe, & Bell, 2014). The majority were Australian papers, with some North American. The results concerning positive intrinsic motivations are summarised in Table 3.9, again using the three essential needs framework. The most frequently mentioned attractions-to-stay fitted comfortably into this framework. Table 3.9 shows similar themes to earlier findings concerning medical and allied health practitioners, with the most frequent reference being to diverse and challenging clinical work. Neither CPE nor autonomy were very frequently mentioned as especially attractive factors by dental practitioners. Professional autonomy was not frequently mentioned, possibly because dentistry is a relatively autonomous practice, irrespective of location, since it does not require coordinated multi-disciplinary team collaboration across the community.

Table 3.9

Positive Influences for Dental Practitioners in Rural/Remote/Very remote Work

Frequency of report: 1=most frequent	Essential need domains			Other	
	Autonomy	*Competence*	*Relatedness*	*Intrinsic*	*Extrinsic*
1		Diverse challenging clinical work			
2		Increased clinical and admin experience			
3			Enjoyable patient base		
4					Appropriate salary
5			Personal and professional support networks		
6			Feeling part of community		
7				Enjoyable lifestyle for self and family	

Competence and relatedness needs based attractions were comparable for the dental and other allied health practitioners. "Appropriate" remuneration gained more frequent mention by dental practitioners than by other health practitioners.

The nine most frequently mentioned negative influences on the decision to leave rural or remote and very remote dental work are listed in decreasing order of frequency of mention in Table 3.10.

The top three negative influences on rural and remote dental practice most frequently cited by dentists related to deficits in social and professional company (social isolation), access to facilities and activities, and not enough time off from an excessive workload. These were similar to the collective allied health group which rated deficits in management support, overwork and under-resourcing, leading to burnout, and lack of company (social isolation) as the top three disincentives in rural and remote work. In both cases, these related to relatedness (deficits in), competence (impairing of) and autonomy (insufficient) needs.

The main difference between dental practitioners and the collective allied health group was that the former rated type of clinical work as the fourth most frequent negative influence; the latter made no mention of any type of clinical work in their top 10 disincentives. Both groups rated the same themes - family and social reasons, poor access to CPE, and problems with living in a small community - in the second half of their list of disincentives.

The findings of Godwin et al. (2014) concerning the influences on job location decisions by dental practitioners were affirming of earlier findings concerning health professionals in the rural and more remote areas. However, their findings were vague with respect to actual recruitment and retention

motivations, as compared with "influences" in rural practice. Godwin et al. (2014) concluded "The main finding was that there was little comprehensive or definitive research into the influences on the work movement decisions made by dental practitioners"(p. 4), and "… many of the studies …[were] unable to comprehensively describe or investigate motivational factors beyond the boundaries of particular geographical areas or timeframe" (Godwin et al., 2014, p. 4). Consistent with the findings of Humphreys, Wakerman, Pashen, et al. (2009), they found that the various initiatives used to address the maldistribution of dental practitioners across remote Australia have not been evaluated adequately. They also conveyed that three quarters of the studies reviewed made assumptions around this topic that were, as yet, not thoroughly supported empirically.

Godwin et al. (2014) found that, in the context of the so far empirically supported link between prior rural exposure and, particularly, rural upbringing and better retention among medical practitioners (Dunbabin JS & L., 2003), this link was not well supported with dental practitioners. Accordingly, they warned against assuming that because one profession is attracted or held by an incentive variable, that others will be also. They noted that most of the incentives to attract dental practitioners to rural and remote practice had so far been financial and contractual, even though these had not been conclusively shown to actually enhance retention and, in some situations, to actually reduce it. They interpreted the studies to be indicating that the most influential retention factors for rural practice were "personal" to each individual. This was consistent with the Humphreys, Wakerman, Pashen, et al. (2009) recommendation to tailor incentive packages on recruitment to the individual's needs.

Table 3.10
Negative Influences Mentioned by Dental Practitioners

Frequency of mention: 1= most frequent	Three essential need domains		
	Autonomy	Competence	Relatedr
1			Social a professi isolatic
2			
3	High workload/ not enough time off		
4		Type of clinical work	
5		Poor access to CPE	
6			
7			
8			
9			Difficulty integratin commu

Overall the Godwin et al. (2014) study recognised the difficulties involved in identifying actual motivations among practitioners without having adequate measures to do so. Frequency of positive and negative mention of incentive themes found in the relevant literature, also used by Campbell et al. (2012), is an imprecise method. The information it conveys as to comparative motivating strength of each incentive or disincentive is ambiguous. An incentive could be mentioned very frequently because it is more widely available than most, across all practitioners and/or remote workplaces sampled, rather than because it is an

essentially strong motivator or de-motivator. For example, both diverse workloads (attractive) and periodic excessive workloads (unattractive) could be encountered everywhere, and so mentioned very often, rather than being mentioned because either of them is intensely motivating or de-motivating *per se*.

3.5.2   Health worker motivation scale development.

A series of studies relevant to this work was published from 2012, outlining the devising and use of a rural health worker motivations assessment tool to measure the impact of various rural interventions in the health systems of Kenya, Uganda, Ghana and Tanzania (Bonenberger, Aikins, Akweongo, & Wyss, 2014; Mbindyo, Blaauw, Gilson, & English, 2009; Mutale et al., 2013). Because they were the only studies so far discovered which appeared to address the same subject as the present study, they were examined, in spite of the fact that they did not emanate from countries closely comparable with Australia. In these studies the strong potential for health worker motivation to influence quality of service was noted, as also was the difficulty of measuring motivation usefully (Mutale et al., 2013). The need for, and devising of, a measuring tool was described, the need to address poor rural health worker retention was emphasised, the links between motivations, job satisfaction and retention were observed, and the potential for use of a motivations measuring tool in before- and after-intervention evaluations of management initiatives was noted. Work motivation was defined transactionally as the degree to which a health worker is willing to exert and maintain effort towards attaining organizational goals (Franco, Bennett, & Kanfer, 2002). It was hypothesised that work motivation directly influenced work performance and would mediate the impact of interventions aimed at raising that performance. The measure devised for use in these studies began as a 23-item index developed by Mbindyo et al. (2009) from an earlier tool which was underpinned by seven

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constructs: general motivation, burnout, job satisfaction, intrinsic job satisfaction, organizational commitment, conscientiousness, timeliness and attendance. In the context of the present study, most of these constructs related more to job satisfaction and job engagement than motivation *per se*.

In the interests of parsimony, Franco et al. (2002) reduced the 23-item index to 10 items and 3 factors: organizational commitment (three items), job satisfaction (four items) and conscientiousness (three items). The organizational commitment factor tapped good feelings that the job induced, but did not tap any intrinsic motivations directly. The job satisfaction items asked for subjective ratings of personal motivation, and the conscientiousness ratings would have been very sensitive to image management (eg "I am punctual about coming to work"). As Mbindyo et al. (2009) concluded, there was (and is) no "gold standard" tool to measure motivation.

To summarise, the above index met the Mbindyo et al. (2009) goals to develop an easily administered, quantitative tool which could reflect levels of motivation. However, the measure gave little indication as to what was actually motivating the workers to meet their personal goals (such as the seeking of one or other competence or sense of relatedness, expressing altruism, or earning status or money). Their index provided more a measure of job engagement, which is a manifestation of the level of motivations present, but not a description of them. A standard measure of job engagement is used in this study in the data gathering process to help validate the eventual motivational subscales (see Chapter 4: Method). The merging of the concepts of engagement with motivation, combined with the lack of clarity about how remote "rural" was in these African studies, restricted the relevance of the above studies to the present study.

3.6   Conclusion

Two questions on which this review was based asked:

What is the nature of the work motivations of the health practitioner who

chooses the very remote Indigenous community workplace in Australia?

and,

How do those work motivations influence retention in that workplace?

The literature review was limited by the lack of a commonly used

remoteness classification system which differentiated between the very remote

and less remote workplaces. Accordingly, there was a paucity of studies accessed

which explicitly addressed the very remote practitioner's motivations, directly or

indirectly. However, the review findings when considered together indicated that

the practitioner likely to be attracted to the Australian remote and very remote

Indigenous community workplace will be influenced by at least the following

expectancies of such work:

- Being able to use, and helped to develop, a wide range of skills relevant
  to helping underserved Indigenous people improve their health;

- Gaining the opportunity to learn about Indigenous people and culture;

- Having access to wilderness based recreation,

- Being paid a competitive and fair salary with associated benefits.

The matter of remuneration was of moderate priority; there was no sign of a

driving "mission" beyond helping underserved Indigenous people. Nor was there

any evidence to suggest practitioners contemplate very remote work to escape a

sense of poor fit elsewhere. Whether this was because these possible motivations

were not polled adequately, were suppressed consciously or unconsciously, or simply not influential, remains to be tested.

On what contributes to the retention of the practitioner in the remote and very remote workplace, the literature indicated that the motivations associated with good retention prospect are likely to include the seeking and enjoying of:

- the practitioner's own company while working independently;

- the undertaking of considerable responsibility;

- learning from own experience;

- clinical variety and challenge;

- contributing to and learning about Indigenous health and culture;

- having regular access to face-to-face CPE/CPD;

- networking and legitimate dual relationships;

- developing and using therapeutic relationship;

- feeling part of the host community;

- the natural environment, new sensation, adventure and bush lifestyle, with opportunity for managing uncertainty and risk;

- being fairly and appropriately remunerated.

These core drivers of the practitioner who is likely to stay for a substantial time in the remote/very remote setting relate to all three essential needs of Autonomy, Competence and Relatedness. This contrasts with the initial motivations pattern above, which was Competence and extrinsic motivation oriented.

This review also provided evidence that the nature of the de-motivating and dissatisfying of the practitioner who was likely to leave the remote/very remote workplace was likely to involve:

- Feeling unsupported by unresponsive distant management;

- Feeling overworked, often overwhelmed and even "burned out";

- Feeling professionally isolated;

- Ineffective, inaccessible, irrelevant or absent CPE/CPD/CME;

- Distracted by family/social matters elsewhere;

- Feeling constricted by small community;

- Beginning to believe that to make significant difference is not possible;

- Drawn to more attractive career and travel options.

This array of disincentives together convey a sense of unmet Competence and Relatedness needs, along with a sense of dwindling Autonomy to do the job independently and effectively and an awareness of more attractive options.

The next chapter details the research design and methods used in this study, including the construction of an extensive health practitioner survey, the motivational items of which reflect the above findings.

CHAPTER 4:   METHOD

The Method used in this project is presented in the following five sections:

Section 4.1: Method Overview;

Section 4.2: Scale development;

Section 4.3: Ethics Approval;

Section 4.4: Data analysis;

Section 4.5: Addressing the Research Questions;

Section 4.6: Defence of Method.

4.1   Method Overview

The method described here was used to address the two broad research

questions around which the literature review was framed. These questions were

refined as the study developed, consistent with the emerging new knowledge. The

three main strategies used to answer them involved the development of the health

practitioner motivations scale (HPMS; Section 4.2); describing the nature of the

predominant motivations; the exploring of the new subscales' qualities; followed

by their use in addressing the refined research questions (Section 4.4). The latter

involved exploring the influence of the identified motivations in some detail, on

retention in the very remote Indigenous community workplace.

Scale development methodology is predominantly quantitative, but also can

involve qualitative work in the early stages. The latter was used in a limited way

to help in the later assessing of the subscales' validities. The Health Practitioner

Motivation Survey (HPMS: see Appendix A) was developed to provide the

substrate from which the subscales would be derived, using the component and

factor analytic procedures referred to in Section 4.4.

First, it was ensured that a suitable instrument did not exist already. None was found in the literature review, but some useful empirical findings were identified that related to practitioner work motivations.

Second, it was important to define the scale's underlying construct of work motivation. In the absence of a concise definition with wide consensus that related closely to this study's goals, the following conceptualisation was developed from the findings in Chapter 2, to guide the health practitioner's motivation scale development process in this study.

Work motivation is a behaviour energising force produced within the actor by a set of concurrent influences coming together, including internal factors - wants and needs, goal focussed, belief and value based, expectancy driven; and external factors relating to the job and workplace, which provide potential inducements to action. Such motivation is readily changeable, being dependent on so many variables, and with regard to workplace behaviours, and ".. three aspects of action that motivation can affect are direction (choice), intensity (effort), and duration (persistence)" (Locke & Latham, 2004, p. 2).

Drafting the HPMS drew on theory, literature review findings, existing relevant assessment instruments and experienced practitioners. Early drafts were reviewed by a panel of very remote experienced health practitioners, and later trialled with a larger group of very experienced practitioners who provided structured feedback. This was all aimed at ensuring that the HPMS was as sensitive, discriminating and relevant as practicable, following best practice (Bryman, 2007; DeVellis, 2003).

4.2   Scale Development Procedure

Best practice scale development procedure is well outlined by a number of authors (DeVellis, 2012, 2016, 2003; Oswald, 2014; Pallant, 2010) who were frequently referred to in this project. DeVellis (2016) noted that scale development is evolving with new analysis techniques, but there was little contention among these authors around the necessary core procedures, which were implemented in this method as follows:

i)   The scale's intended underlying construct and related possible components were portrayed in Figure 4.1 to convey the components of work motivation under study, using the three essential needs based model referred to in Chapters 2 and 3;

ii)   The more detailed motivational schema (Figure 4.2) was developed from Figure 4.1 and the literature findings in Chapters 2 and 3, to guide and stimulate item generation;

iii)   Survey items were generated based on literature review findings, theory, relevant psychological assessment tools, convention (such as the "Three Ms") and the advice of very experienced health practitioners;

iv)   The response format was chosen;

v)   The HPMS, comprising 101 health work related motivation items, was developed over a six-stage iterative process of piloting and refining;

vi)   The survey was administered to target samples across Australia, gaining a total 547 respondents;

vii)   An initial nine motivational domains were identified, based on the response patterns, from which 17 draft work motivation subscales were extracted;

viii)   Each subscale was confirmed using a second method of exploratory

factor analysis and the 14 accepted subscales then subjected to

reliability analysis.

ix)   Validity appraisal was commenced on the 14 subscales.

4.2.1   Defining the underlying construct.

The underlying construct central to this study was conceptualized in

Chapter 3 as a behaviour energizing force produced within the worker by a set of

concurrent influences coming together, goal focussed, expectancy driven and

readily changeable. This construct underpins Figures 4.1 and 4.2, underlying the

five broad motivational domains of Figure 4.1, including the essential needs triad,

and the nine component motivational domains of Figure 4.2, from which the

HPMS items were drawn.
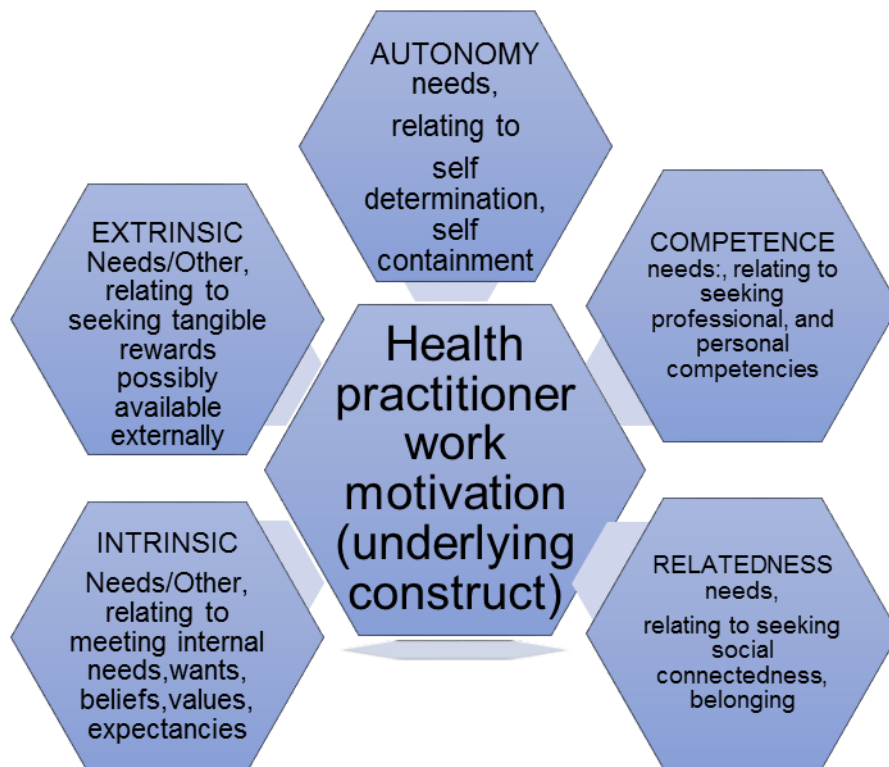
Figure 4.1. Health Practitioner Work Motivations: Five core need domains.

4.2.2   Schema to guide item generation

Figure 4.2 provides the more detailed constellation of possible HP work

motivations that was used as a guide for HPMS item generation.

Autonomy, self determination:
Taking charge of life, health and behaviour; life direction; preferences for independent ways of working; sense of internal locus of control

Intercultural:
Desire to help Indigenous people; to learn about and working with Indigenous and other cultures; expect to contribute to Closing the Gap

Competence:
Professional development: CPE, supervision, advanced skills, career lift, breadth of practice, seeking professional respect; seeking satisfaction for highly demanding clinical work; wanting to work to personal clinical and physical limits

Stimulation needs for:
Change, novelty, challenge, adventure, risk.

Relatedness:
Family stage-related needs; need to feel team –membership and connectedness; need for sense of belonging, acceptance in community; respecting needs of significant others

"INTRINSIC"

Intrinsic needs/other:
Search for mission, meaning and purpose; spiritual beliefs, sense of gift, calling;
Fit and belonging needs;
Need to care, treat, heal, relieve suffering.

Underlying Construct:

Health Practitioner Work Motivation

Public Service Motivations:
Beliefs in social justice; compassion; self-sacrifice; serve the underserved

"EXTRINSIC"

Extrinsic needs/Rewards:
Pay, allowances, housing, leave, travel, retirement savings, good pay for overtime

Extrinsic needs/Lifestyle:
Preferred living/working env't preferences; Urban vs rural; comfort vs challenge, high vs low supports; social vs isolated; ordinary vs extraordinary; gentle vs extreme climate

Figure 4.2. Health practitioner work motivation: a framework to guide item generation

4.2.3   Compiling the HPMS item pool.

The HPMS 101 motivation items were drawn from many sources, all tabled in Appendix B, along with their rationale for selection, intended purpose and affiliated domain. Items were constructed based on their expected relevance to one or more of the motivational domains in the constellation portrayed in Figure 4.2.2. These, in turn, related to:

- Competence building needs and wants: personal and professional skills development, including seeking advanced skills and related CPE/CPD.

- Autonomy-related work preferences, including working alone and not closely supervised (or the reverse, preference for close oversight as a member of a close team);

- Both competence and autonomy need related stimulation based motivations, such as appetite for challenge, novelty, variety and adventure, associated with expressing professional and personal self-efficacies.

- Relatedness based motivations concerning living, relationship and work, and social environment preferences (such as level of engagement with client groups).

- Intercultural interests, including competence-related wants and needs around learning about Indigenous culture and language, and other intrinsic drivers such as curiosity about Indigenous life;

- Mission and meaning driven motivations to express compassion, provide care in high need contexts such as the chronically underserved (inner city; very remote), and meet spiritual and self-care needs.

- Preferences concerning choice of profession and workplace type and location, in terms of remoteness; preferred ways of working, including primary health care (PHC);

- The Three Ms, including sense of calling to treat, heal; priority to maximise earnings; strong want to find a place to feel better fit, acceptance, sense of place, belonging.

- Public service motivations, including altruistic intentions, desire to contribute to social justice and to express compassion and/or self-sacrifice (Perry, 1996);

De Vellis (2003) recommended the commencing of the scale development process with approximately four times more survey items than the target number for the final scale. Noting that three items in a subscale is the minimum viable number, then the target for *commencing* items in any motivation domain was 12 items, being four times more than the minimum viable end number for a scale.

All but one of the domain headline question stems were positively expressed. This was to maintain a positive tone and to promote simplicity and ease of response, noting that one possible end-use of the final scale was as a human relations management (HRM) tool.

The early drafting of many items were initially drawn from the International Personality Item Pool (IPIP) (Goldberg et al., 2006), as cited in Appendix B Table B.1. The IPIP is a free-access set of scale items based on the "Big Five" personality factors, being Openness, Conscientiousness, Extroversion, Agreeableness and Neuroticism (McCrae & John, 1992). Many of the IPIP's large menu of items are motivation-centric in that they explicitly convey behavioural tendencies that express preferences, needs and wants, such as those

relating to risk taking and adventure seeking predispositions. Such items were adapted for trialling in the HPMS, based on both their face validities and their evident match with one of the motivation domains or sub-domains in Figure 4.2. The PSM body of work (Perry, 1996) also provided several relevant domain themes (see Figure 4.2) such as compassion, social justice and self-sacrifice. Relevant items were generated to tap these themes, including choice of work with Indigenous and other underserved people and contributing to "Closing the Gap" (Lenthall et al., 2011) in the remote and very remote public service environment. The source and reasons for inclusion of all 101 motivation HPMS items are tabled in Table B1 (Appendix B). Each item was allocated to a domain on the basis of its conceptual sharing with that domain.

While remote and very remote practitioner motivations were of core interest in this study, the item pool was designed so that health practitioners from all levels of remoteness, including major cities, could relate to it. The piloting with urban and regional health practitioners confirmed that this was achieved, while accepting that some items were not applicable to non-remote settings. Terms used in the items were also chosen to be as acceptable as possible to a wide a range of health practitioners. For example, the couplet "patient/client" was used to cater for both medical and allied health workplace preferences.

4.2.4 Choosing the response format.

There is no incontrovertibly best single format (e.g., Likert) or range of item responses in scale development (Pallant, 2010). To maximise reliability and validity, item design was kept as constant as possible, visually and textually simple, and as easy to respond to as possible. The hard copy survey question panels were printed in contrasting but pale colours (see Appendix A). The questions and answer options were all personalised, using "you" and "your". The

survey's layout was more spacious than that shown in Appendix A, due to the need to mildly compress the survey to suit this document's template.

Various item rating formats were piloted, leading to the choice of the six point rating scale (1:Very unlike me to 6: Very like me) with no midway neutral point. The pilot trials yielded no evidence that the absence of a neutral choice caused problems for respondents. For those very few items for which "Not Applicable" would apply to the majority, such as those concerning visa/length of stay, the respondent was asked to leave the item blank.

4.2.5 Developing the HPMS.

The HPMS was developed over several months, in six drafting stages.

Stage 1: The first draft HPMS was prepared using the procedure outlined above. This draft was then critiqued by an expert in scale development (Associate Professor Julie Pallant, then of Melbourne). It included personality trait items with what were assessed to be of insufficient motivational content, mixed with clearly motivation centric items. The former were deleted. There were also over 25 bio-demographic questions and three scales (15 items total) of "Variables of Interest" (job satisfaction; engagement; sense of fit) included. The (second draft survey was shortened and sharpened in focus.

Stage 2: A panel of 12 health practitioners then assessed the second draft. They were selected for their ten years' minimum diverse health practice experience. A majority were nurses, with some medical and allied health professionals also included. They had all worked and lived in the very remote work setting at some time, all had urban and other experience; not all had met the researcher beforehand. Each member was approached personally, face to face or via telephone, briefed on the study, then furnished with the Project Information

Sheet, the first letter to a possible panel member, and the Consent to Participate form (see Appendix C.3).

Where consent was provided, the second draft survey was delivered via email or hard copy, along with a set of structured response sheets and questions about the draft HPMS (Appendix C.4, C.5). These structured questions canvassed whether there were any serious omissions in the motivational domains and/or items, among other possible flaws. Comments were invited concerning the level of user friendliness, item clarity and so on. The majority chose electronic delivery of the material. A summary of feedback from stage 2 (Appendix C.6) provided an example of the level of detailed feedback obtained.

Stage 3: The third draft was distributed, in hard copy, to health practitioners of various levels of experience, who were opportunity sampled while they were taking short post-graduate skill upgrade courses in the Northern Territory. These practitioners were mainly nurses and medical practitioners, from various cultures and work locations including, but not only, remote hospital and very remote community locations. They were presented with a five-minute outline of the research, then the surveys were left for them to later collect and return completed. Broad ranging feedback was obtained regarding content, style, ease of response and comprehensibility (see Appendix D).

The range of time taken to complete the survey was noted, with over 90% taking between 15 and 25 minutes.

The on-line Survey Monkey version was reviewed at this stage by an expert in internet based surveying, to advise on formatting and related best option choices.

Stage 4: The fourth HPMS draft was administered to specialist senior health practitioners in urban, regional, remote and very remote areas, representing a broad range of professional preferences and expertise. They were identified through the health industry network, via both direct acquaintance and word of mouth referral, based on their length of experience in the health industry and proven expertise across a broad spectrum of health services. Hard copy and internet forms were used. Several experts in health services research also critiqued the survey. Minor variations on the Stage 2 feedback structuring prompts were used, leading to the fifth draft.

Stage 5: The resultant 140 item HPMS draft was again reviewed by the scale development consultant and a statistics resource person, producing the sixth and final draft, available in both hard copy and internet forms. The two versions differed only in the numbering and minor formatting necessary to meet Survey Monkey requirements. The survey was blandly titled and the rationale and instructions were phrased as neutrally as possible, to avoid unduly influencing response-set. The aim was to minimise social desirability bias and related image management or "faking" (Paulhus & Reid, 1991), and resistance to frank response. Piloting found no indication of such bias; it was decided not to embed a fake-check scale into the survey.

Some clarifying and elaborating of the initial motivation domain groupings evolved through the six stages. Items were clustered under their question stems, sometimes but not always sharing motivation domains (such as pursuit of professional competencies, or stimulation). See Appendix A for the final 140 item HPMS, including the 101 motivation based items, and Appendix B, Table B.1 for a summary of the all the motivation items' origins.

4.2.6   Administering the HPMS.

The participants.

Of the total 547 participants, there were 257 in the nursing profession, 144 allied health practitioners, 79 medical practitioners, 54 "Other" practitioners, including those provisionally registered, specialist health workers or advanced students. Thirteen did not register their profession. See Chapter 5, Results: Tables 5.1.1 and 5.1.2 for the demographic and related sample numbers.

There is some consensus (Worthington & Whittaker, 2006) that a minimum of 300 useable responses is required for scale development. Responses obtained for this study were sufficient: see the discussion below on suitable sample size criteria for factor analysis, and hence scale development (Section 4.4.2).

Sampling.

For the main HPMS survey, purposive sampling was used, targeting professional groups over a very broad range of locations and health facilities across Australia. There were two main approaches, both aimed at maximising survey return.

Approach 1 involved the researcher telephoning a health service unit, usually a community health centre, other community health facility or hospital. A national database of such very remote facilities was held at the Centre for Remote Health (CRH) Alice Springs. The less remote facility contacts were obtained via publicly accessible sources. The script used as a guide for this initial "cold call" contact is provided in Appendix C.8. On receiving agreement to participate in the study, a contact name was obtained and an introduction/thank-you note was emailed to the approved contact person without delay (see Appendix C.9). The project information sheet and survey link were attached to the email, in which it

was advised that the submitting of a completed survey, either hard copy or net based, conveyed informed consent. No agency refused the follow-up email offer.

Approach 2 involved national professional membership and employing organisations. These included Services for Australian Rural and Remote Allied Health (SARRAH); Council of Remote Area Nurses of Australia (CRANA*plus);* Central Australian Remote Practitioners Association (CARPA), Rural Doctors Association (RDA), the Australian Psychological Society (APS), and the NT social worker network. In addition, contact was made with the following: Medicare Locals, several Aboriginal health services in the NT (Central Australian Aboriginal Congress; Nganampa Health Service), WA and SA; several medical rural experience training groups (WA, SA, NT) and several urban, remote and very remote health provider networks (NT, SA, WA, NSW, Qld, SA, Vic).

Most agencies expressed strong interest in the project. Each provider was first personally contacted, then, where appropriate, sent invitations to become involved, accompanied by the project information package and ethics approval information. Where a professional association agreed to publish the project's flyer in its newsletter, the association's standing procedures for doing so were followed. This involved providing an internet based invitation-to-participate, tailored in content to the expected specific interest of their membership. An example of such an open invitation is provided in Appendix C.9

Approach 3 was similar to Stage 3 (above) in the HPMS drafting, health practitioners attending professional development courses in Alice Springs and Darwin were opportunity sampled. These included both hospital and community based remote and very remote area nurses, medical officers, and pharmacists. The researcher or course leader provided a brief outline of the project at a convenient

time in the course, and then made hard copy surveys readily available for those who wished to participate. They returned the survey in the provided stamped addressed envelope. The response rate was again approximately 50%.

In all these approaches, emphasis was placed on confidentiality and anonymity being guaranteed. Incentives to complete the survey included an outline of how the information could eventually help improve services and how positive feedback had been received about the reflective processes induced by doing the survey. A guarantee of a cash allocation to one of five health charities nominated by the respondent on completion and receipt of the survey (see Section 4.3 Ethics Approval, below) was also given.

Participants' work locations.

The distribution of survey participants' workplaces at the time of response (in ARIA +zones) are listed in Table 4.1:

Table 4.1
HPMS Respondent x Remoteness

Remoteness Classification	N	%
Major Cities	67	11.7
Regional (Inner & Outer)	151	26.4
Remote	161	28.1
Very Remote	193	33.7

Twenty-five of the 547 respondents marked more than one zone, explaining the total of 572 respondents. These 25 practitioners were sharing their work time between two different zones. The figures show that the distribution is skewed towards the more remote, and especially the very remote, practitioner but that all four levels are well represented.

The ARIA+ classification was chosen for its unambiguous remoteness zoning of Australia. As already noted, the "rural and remote" classification was not

sufficiently discriminating between levels of remoteness in the context of this research. See Section 4.6 Defence of Method for more detail on this choice.

4.2.7 Construction of the subscales.

All data obtained by hard copy surveying was transferred to the Survey Monkey platform, from which it was exported to SPSS Versions 20 and, from 2015, Version 22. For a detailed outline of the statistical methods used, see Section 4.4.1: Data Analysis, below.

4.2.8 Validation of the HPM subscales.

The study's progress in appraising the subscales' validities is documented in Chapter Section 6.2. *Content validity* was built into the subscales by way of the method used to develop them. The item groupings from which each subscale was derived were sets of items chosen on the basis of their apparent shared conceptual grounds (domains). The resultant subscales were then named on the basis of the content in common of their constituent items.

Assessing the Health Practitioner Motivation (HPM) subscales' *Criterion related validities* involved appraising the relationship between each subscale and at least one variable of special interest, such as length of tenure in an Indigenous very remote community.

Assessing *Construct Validity* required evidence that each subscale effectively measures a facet of practitioner work motivation. First, subscale scores were correlated with scores on scales of variables of interest for which there is evidence of relationship with work motivations. These included person-job fit (Bright 2007), job engagement and job satisfaction.

Incremental validity refers to the contribution that the HPM subscales make in advancing the measuring of health practitioner motivations, beyond that provided by pre-existing instruments. In the absence of motivational measuring

instruments tailored to the very remote Australian practitioner, this validity should not be in question, provided the subscales are statistically sound and demonstrate validity in the above validity categories.

4.3   Ethics Approval

Ethics approval was obtained from the Flinders University Social and Behavioural Research Ethics Committee (SBREC), the Central Australian Health Research Ethics Committee (CAHREC), and the Aboriginal Health Research Ethics Committee (AHREC) of South Australia.

It was anticipated that these approvals would be accepted as sufficient for ethics clearance for very remote surveying across Australia, based on recent experience in a similar application (Campbell, 2011). Late in the surveying this was found not to be the case; the Queensland public sector required additional in-state approval.

Respondents were voluntary, anonymous, and could choose to receive feedback via an address provided separately from their survey return. Work motivation material was the only personal, as compared factual, disclosure sought. No single race of people was specifically focused upon.

It was expected that an additional incentive to completion satisfaction would be required for many to complete the 140-item survey. A proposal for offering a cash incentive draw entry for every completed survey was not ethically acceptable to SBREC. However, a donation towards one of five health charities nominated by the respondent on survey completion was acceptable. The final donation to each charity was to be drawn from a total of $2000.00, proportionate to the number of votes each received compared with the total. This incentive appeared to be well received by participants.

A caution was raised by ARHEC about the use of the construct "missionary, mercenary and misfit" in the draft HPMS title. It was suggested that this could cause offence among some Indigenous people. Accordingly, the phrase was deleted from the title of the final HPMS.

4.4   Data Analysis

The method of analysis used to derive the health practitioner motivation subscales from the HPMS follows. The term "component" is used when referring to principal component analysis (PCA) output, while when referring to principal axis factoring (PAF) outputs, the term "factor" is used.

4.4.1 Data preparation and item analysis.

Data screening involved initially checking every motivation item for:

- An abnormal number of missing cases, possibly due to content and/or order-of-appearance influences.

- Scores lying within the valid score range (1 to 6).

Item Characteristics were assessed with particular reference to:

- Item mean, standard deviation, median, total items' means and response distributions; where extremes were noted, histograms were produced.

- Low variance and high skewing, which usually indicated the need for the item's deletion because of its low discriminating power and low correlating with more suitable items.

- Low commonality with other items on a component early in PCA, were flagged for *possible* later removal.

Examining the Inter-item Correlations matrix to assess:

The magnitude of both item-pair correlations and their means, as advised by Gable and Wolf (1993), DeVellis (2003), Pallant (2010), and Oswald (2014), to identify inter-item correlations below 0.3 and above 0.8, which

both suggested later possible deletion, since they were unlikely to contribute well to discriminating power and reliability of their sub-scale in the final product.

Selecting some items for scoring reversal prior to PCA, whereby:

The scoring (range 1 to 6) was reversed ("Very Like Me" then earning one point, not six; "Like me" earning two points, not five; "Very Unlike Me" earning six points, and so on), for those items that asked the negative of a domain's theme, using the SPSS V19 Transformation procedure. This ensured all items scoring "in the same direction", in the rating of their motivation domain.

4.4.2 Assessing the dataset for "factorability", or suitability for factor analysis.

Assessing suitability for factor analysis involved two main considerations (Pallant, 2010): the sample numbers and the strength of the inter-item correlations, which both influence the associated Measures of Sampling Adequacy (MSAs).

Sample number required.

It is generally accepted that for factor analysis, the larger the sample the better, with over 300 useable items regarded as "safe" (DeVellis 2003; Pallant 2010; Tabachnick & Fidell 2013). Where there are high inter-item correlations (>.8), a minimum of approximately 150 (Tabachnick & Fidell, 2007) could suit. The ratio of the number of participants sampled to the number of scale items under analysis can be useful. The aim is to obtain at least five, but preferably 10, respondents per item, depending on the application (Gable & Wolf,1993; Tabachnick & Fidell, 2013).

The HPMS' 101 motivation items were expected to produce approximately ten subscales. Of the 547 surveys received, approximately 80%, or around 450,

were useable, the exact number depending on the item being considered. Hence all the subscale domains of motivation, with initial item numbers ranging between 10 and 24 items to each domain, achieved adequate subject-to-item ratios in terms of the above guidelines, the minimum ratio being 450 participants per 24 items, or over 18 subjects per item.

Measures of sampling adequacy (MSA).

Ensuring sampling adequacy included, first reviewing the inter-item correlation matrix to check that correlations above 0.3 were well represented (Pallant, 2011). Then, the following measures of "factorability" were obtained in the initial PCA for each domain:

- Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy, needing a minimum $+ 0.6$ (Pallant, 2011; Pett, Lackey, & Sullivan, 2003); and preferably above 0.8 (Kaiser, 1974);

- Bartlett's test of sphericity, which needed to be significant at the $p < 0.05$ level (Pallant, 2011);

- The Anti-Image Matrix (lower half diagonal) correlations; the majority of these needed to be above 0.7 to be adequate (Tabachnick & Fidell, 2003); items correlating well below .65 were noted as later possible candidates for deletion, as per Pett et al.'s (2003) guidance.

4.4.3 Choosing the component/factor extraction techniques.

The differences between PCA and the various EFA methods, such as PAF and Maximum Likelihood Factoring, derive from the mathematical methods they employ (Pett et al.,2003;Tabachnick & Fidell, 2013). Solutions produced by these techniques are often similar when using samples similar in number to those used in this study. Tabachnick & Fidell (2013) concluded:

"PCA is the solution of choice for the researcher who is primarily interested in reducing a large number of variables down to a smaller number of components" (p. 640). Scale development involves this reducing task to produce components (subscales) from a large number of variables (item scores).

PCA is also recommended (Pett et al., 2003) for clarifying the maximum number and nature of *potentially* orthogonal (nil or weakly related) components to extract from data such as the domains of interest in this study.

PCA was chosen for the initial analysis for each domain, based on these recommendations.

4.4.4 Optimising the number of components/factors to extract.

The use of PCA requires several judgement calls, including "The difficult decision [as to] how many …. factors to retain for rotation and further investigation" (Pallant, 2011, p. 24). To judge this, six criteria were applied to the first matrix generated in each domain's PCA:

i) Assessing dimensionality: Deciding whether the first matrix produced in the PCA was uni- or multi-dimensional determined the course of all following events. First, item loadings on the unrotated Components Matrix were examined; If all items loaded above 0.3 on Component 1, and none cross-loaded above 0.4 with any other component (Pallant, 2010), and none of these other components had three or more items loading above 0.4, then the analysis was deemed "unidimensional" (Slocum-Gori & Zumbo, 2011), and no further reducing of the number of components was pursued. Where there were several substantial loadings above 0.4 on more than one component, the best solution was expected to be multidimensional, suggesting that more than one construct was underlying

the domain, so that further manipulating of component numbers and rotations was pursued.

ii) "Kaiser's Rule" (Oswald, 2014): this predicts that the number of components with eigenvalues equal to or greater than 1.0 (Kaiser, 1974) usually indicates the best number of factors to extract;

iii) The ratio of the first to the second eigenvalue: when greater than 3:1 (Slocum-Gori & Zumbo, 2011), a unidimensional solution was considered very possible;

iv) Cattell's scree plot (Cattell, 1966): the number of components above the first clear change in direction, or "elbow" (Pallant 2010) on the plot, looking from right to left, was also used as an indicator for the best number of components to extract. All scree plot figures shown in Chapter 5 were produced using IBM Corp's (Armonk,NY) SPSS Version 19 program: Analyze→Descriptive statistics→Explore;

v) The percentage of total variance explained (TVE) by each component: for example, those components explaining less than 1.0 Eigenvalue (Pallant 2010), were not considered further, and those explaining above 1.0 were noted as probably best retained for further refinement;

vi) Horn's Parallel Analysis (PA) (Patil, Singh, Mishra, & Donovan, 2007): this parameter was calculated and tabled, using the same sample size and number of variables as used in the PCA, generating a random dataset, including eigenvalues, to be compared with the eigenvalues produced by PCA. The number of eigenvalues produced by PCA that exceeded those generated randomly by PA indicated the maximum number of components to extract. This is considered by many as the most reliable single indicator for the optimum number of components

to extract (Slocum-Gori & Zumbo, 2011; Zwick & Velicer, 1986), being the most independent of them mathematically. This parameter was calculated and used routinely in the PCA decision making in this study and found to be the most reliable indicator.

With approximately 450 valid responses per item in each subscale, with unrotated communalities usually higher than 0.2, and with large skew uncommon, the systematic use of these methods in combination was well supported by the literature (Slocum-Gori & Zumbo, 2011).

Clearly, both PCA and the EFA methods require researcher judgement (De Vellis 2003). For example, when three or fewer items loaded above 0.3 on a minor component, with some cross-loading, then the number of components was reduced, even if contrary to the six indicators. This reduction ensured better loading across the remaining components and hence a more robust final solution and subscale.

4.4.5 Choosing the factor rotation technique.

Rotation can lead to orthogonal solutions (with unrelated components) or oblique solutions, where components are expected to be related (DeVellis, 2003) to an influential degree. The Direct Oblimin rotation method was chosen to manage the expected orthogonal solutions, since the components (subscales) derived from each domain were expected to only correlate weakly with each other (< 0.4). To check this in each case, the inter-component correlation was calculated for every solution, before accepting it as "final".

4.4.6 Refining a solution.

To refine an emerging solution, the pattern matrix loadings generated by each successive rotation were reviewed and compared. The items with loadings under 0.3 on each pattern matrix were rendered not visible until the final solution matrix

was displayed. The following steps were taken, as recommended by Pett et al. (2003):

- An item which loaded weakly (below 0.4) on any pattern matrix component was noted for possible deletion from the next iteration, unless this prematurely risked excessively weakening the component;

- Similarly, an item which loaded 0.3 - 0.4 on all components under consideration, but was judged to be potentially important to the scale, could be retained but monitored in further analysis; for example, an item expected to be potentially highly discriminating between one or more sample groups of interest;

- An item which cross-loaded on two or more components, with moderate and relatively similar loadings (both within range 0.4-0.6) on each component, was deleted since it would not add discriminatory power to each component and would complicate the interpretation (Pallant,2010; Pett et al., 2003);

- An item cross-loading with one relatively weak and one relatively strong loading on each of two components (both outside the approximate range 0.4 - 0.6) was noted: in the final component description stage, only the strong loading item was assigned to its component (as per Pett et al. 2003), with the weak loading item eliminated from further consideration;

- Any item flagged earlier as a possible deletion prospect, due for example to a low communality (< 0.2) or correlating too highly (>0.8) with another item on the inter-item correlation table, was now considered for deletion in the context of its pattern matrix component loadings;

- Where it became evident that a current iteration's reducing of items or component numbers had been excessive, so rendering the solution potentially unstable, then reverting to an earlier solution was considered.

- Reviewing the total variance explained (TVE) table was used to assess how well a solution explained the variance of the data in terms of its components; some authors recommend a cumulative minimum 60% of total variance must be explained; others accept above 40% (Pallant, 2011) where the solution is strong in other facets. The goal is to achieve adequate TVE along with the simplest but most optimal solution, to facilitate the process outlined in Subsection 4.5.

4.4.7 Comparison: PCA compared with PAF.

Every preferred solution obtained by PCA was re-analysed using PAF. This confirmatory procedure was recommended (Pallant 2010; Pett et al., 2003) to ensure that the preferred solution is robust across different methods of analysis.

4.4.8 Description and naming of component subscales.

The PCA Pattern Matrix item loadings on each component reflected the relationship of each item to that component, *while controlling for inter-component correlation(s).* The PCA Structure Matrix item loading related purely to the component it loads on, uninfluenced by inter-component correlations. In this study, inter-component correlations ranged from weak (<.35) to very weak (.01). The closer the correlation to zero, the nearer to identical the pattern and structure matrices will be. The Structure Matrix was always considered in the process of describing and naming the subscales, because it could often provide confirmatory information with that from the Pattern Matrix relevant to this process.

4.4.9 Subscale reliability and validity appraisals.

Internal Reliabilities

Each subscale was subjected to a reliability analysis prior to the final descriptive stage, to establish its internal reliability and some related properties. Cronbach's α and the mean inter-item correlations for each subscale were used to estimate each subscale's internal reliability. Where item number in a scale is small (well below 10) Pallant (2010) advises to use the inter-item correlation method, in conjunction with Cronbach's α, since the latter is prone to underestimate reliability with small subscale item numbers. A comparison of the subscales' reliabilities is tabled in Chapter 6.

Validities

The appraisal of the subscales' construct validities was commenced by correlating each subscale with each of three variables of related construct relevance. They were the nine item, seven point Utrecht Work Engagement Scale (Schaufeli, Bakker, & Salanova, 2006), a four item, six point Person-Job Fit Scale (Bright, 2007) and the single item, seven point Job Satisfaction scale (Warr, 1990), the latter ranging from Extremely Dissatisfied to Extremely Satisfied. The Engagement and Satisfaction measures have been used effectively with very remote practitioners previously (Opie, 2010a). It was hypothesised that the new subscales would correlate positively with Work Engagement, for which a high score conveyed high feelings of energy, pride and vigorous immersion in the work; a low score conveyed a low frequency of feeling any of these. Some health motivation scale researchers (Mbindyo et al., 2009) equate measures of "engagement" directly with measures of "motivation".

Evidence for significant positive correlations between the practitioner's reported work motivations and job satisfaction and feelings of fit with job and

workplace was based on a body of work exploring the relationships between these variables (Bright, 2007; Kristof, 1996; Lauver & Kristof-Brown, 2001). These authors found that the direct questioning of the worker about perceived levels of congruence in values, goals and expectations between the worker, the job and its environment, provided valid and useful measures of the fit construct. The high person-job fit score conveyed high sense of good matching between worker and work (job, colleagues, employer, community) concerning values, interests, goals and interests duties.

It was hypothesised that the practitioner who feels high satisfaction with current work (Very or Extremely Satisfied), will score highly on many facets of motivation, yet not necessarily all. For example, completing the job tasks may be very satisfying even though the job may not, for example, meet all of the practitioner's financial interests or relationship imperatives, as they evolve in a developing family (Molinari & Monserud, 2008).

Based on all the HPMS data gathered, the descriptive statistics for the three variables of interest are shown in Chapter 6: Results 2: Reliabilities and Validities Table 6.4. A correlation matrix (Spearmans rho) between the three variables of interest is shown in Table 6.5 and correlations between all subscales and the three variables of interest are provided in Table 6.6.

4.5   Addressing the Research Questions

The main purpose of this study was to provide answers to the two broad research questions listed at the beginning of this chapter, which asked:

i)   What is the nature of the work motivations of the health practitioner who chooses work in the very remote Indigenous community in Australia?

ii) How do those work motivations influence retention in the very remote Indigenous community workplace?

The producing of the HPM subscales, using the above method, provided essential tools to commence answering these questions. For example, significance of difference in subscale score patterns (designed to reflect motivation differences) between practitioners who chose the very remote, including the very remote Indigenous community, workplaces and those who did not, was of high interest.

Due to the non-normal distribution of many of the subscales (see Appendix D), the nonparametric Mann-Whitney U (MWU) test was chosen to test for significant difference ($p \leq .05$) between groups. An effect size measure ($r = z / \sqrt{n}$) recommended by Pallant (2011) to use with MWU testing, was used to estimate the influence of each independent variable, such as substantial work experience in the very remote Indigenous (VRI) community, on the subscale score rankings (the dependent variable) in each group comparison.

The logistic regression method was favoured for the analysis of subscales concerning their predictive potential, thus providing an answer to the second broad research question above. These questions were refined into five much more detailed and specific questions in Chapters 5 to 8, to complement the new knowledge that had been generated, enabling comprehensive answers to the two original questions to be provided.

4.6   Defence of Method

   4.6.1 Use of the ARIA + remoteness classification.

   The ARIA+ classification (see map at Appendix A, HPMS, p4) was selected

for four main reasons:

- At the time of selection, it was the simplest, least ambiguous and most

   explicit classification in terms of remoteness and very remoteness, the

   latter being a major variable of interest in this study;

- Several classification maps to help respondents rapidly and easily identify

   their work history in terms of work location remoteness zones were

   trialled in the piloting of the survey: the ARIA+ map was elected as the

   most user-friendly for this task.

- Permission from the University of Adelaide to use the map was sought and

   granted, while recognising that the map is openly accessible at:

https://aifs.gov.au/publications/families-regional-rural-and-remote-australia/figure1.

- In the interests of a unified approach to researching remoteness related

   variables, the ARIA system had been used in recent research concerning

   the very remote practitioner in Central Australia.

   4.6.2 Survey construction.

   4.6.2.1   Item generation.

   As noted previously, the HPMS items could have been compiled using a

largely qualitative survey approach, using individual and focus group interviewing

and related thematic analysis. Broad sampling of health practitioners from across

the entire remoteness spectrum, including the very remote Indigenous community

workplace, would have been essential to meet the study's goals. This very

resource intensive approach risked that the span of motivations obtained from

face-to-face surveying would be too constricted, not reflecting sufficiently the

diversity of motivations possible in this field. The information provided would

also have risked being selective, through "image managing" and "faking positive" (Streiner, Norman, & Cairney, 2014) by practitioners disclosing in front of their peers, in the group setting. Much of the limited parallel research to date has used this more qualitative approach, to varying effect, as recorded in the literature review.

To test the representativeness of the item generation method used, a qualitative pair of open questions was placed in the HPMS. These asked the respondent to record their recalled motivations to seek very remote work, where applicable, and to record if they had changed in motivations since working in such work. The written answers were later compared with the range of motivations scoped by the subscales derived from the HPMS. Over 90% of the recalled written motivations could be thematically matched with one or other of the set of subscales produced using the HPMS.

4.6.2.2   *Faking checks.*

Some authors (1982) recommend the use of a social desirability or "Unlikely Virtues" domain, or an embedded established faking scale, to detect "faking virtuous" tendencies in scale development. It was decided not to include such a check for the following reasons:

- It would lengthen the already lengthy survey;

- The survey guaranteed anonymity, thus reducing any incentive to "fake virtuous";

- There was no obvious reward for, or punishment for lack of, apparent virtuous response;

- The HPMS items were constructed to avoid tapping obviously desirable/ undesirable qualities;

- It was possible to monitor items potentially sensitive to image management/faking during the piloting and so to modify them if necessary;

- The majority of health practitioner respondents were assumed to be capable of detecting attempted verbal deception such as is evident in social desirability scales;

- It was expected that should a practitioner detect such attempted deception and interpret it as such, this would risk negatively influencing his/her attitude towards the survey;

- The literature on such checks is not unanimously supportive of their value (Perry 1996);

- What to do with high scored fake-check items, had they been obtained, was not obvious at this stage of the scale's development;

- In later applications of any newly developed scale, a suitable brief fake-check scale can be used alongside the new scale, if considered necessary.

4.6.3 Subscale development: EFA replication compared with CFA.

PCA was employed for reasons given earlier. After the component/subscale results were "double checked" using the EFA method of PAF, their potential value was explored in the context of the very remote and other variables of interest. This was done accounting for their provisional status but ahead of launching into confirmatory factor analysis, which would require a new round of scale administrations, many of which could prove to be unnecessary. In this context, DeVellis (2012) advised:

"Researchers in some areas of inquiry (e.g., personality research) consider results from traditional factoring methods [EFA] as stronger confirmatory

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evidence than demonstrating good model fit according to a statistical criterion"
(DeVellis, 2012, p. 153). He asserted that EFA is a more rigorous test than
confirmatory factor analysis involves, in replication testing. Pett et al (2003) also
supports the use of the method chosen. Hence, given the size of the present study,
it was decided to explore the nature and potential of the subscales in the context of
this study's aims, after their EFA re-testing and reliability and validity appraisals,
rather than immediately progressing with further confirmatory work on them all.
The latter can be done in the near future with those subscales which have shown
good potential for future applications.

CHAPTER 5:   RESULTS 1
DERIVING THE MOTIVATION SCALES

5.1   Introduction

Following the method described in Chapter 4, the HPMS was distributed to practitioners in all states and territories, between November 2013 and May 2014. The proportion of the total sample ($n = 547$) that fully completed the demographic and professional questions was over 95%. However it reduced to 80-85%, depending on the item, for the motivational items. The Survey Monkey response patterns confirmed that response omissions usually commenced after the more self-disclosive job attitude items (from item 27) or the motivation items (from item 40) presented.

5.1.1   Profile of the HPMS respondents.

A summary of the HPMS respondents' data is provided in Table 5.1. The sample ($n = 547$) comprised over three times as many females (424;77.5%) as males, which substantially exceeds the approximate mean total industry proportion of females (65.6%) in the total Australian health industry (estimated from AIHW 2015 figures in Table 5.3). Only a very small minority (3.1%) were Indigenous while 76.0% were Australian born and 18.2% originated from another country with English as its first language. The sample's age distribution was skewed towards over 50 years, reflecting the life and professional experience that the majority were able to draw from. A majority (71.2%) reported being partnered and 60.1% reported being parents. Only 13.0% had children who were not yet of school age; 49.1% had children who were still in some form of formal education. The majority (58.3%) had parented at least one child who had left both school and home.

Table 5.1
HPMS Respondents: Demographic Data

HPMS Ques-Tion	n	Response Option	N	%
Q 0001: Gender	547	Female	424	77.5
		Male	123	22.5
Q 0002: Race	547	Indigenous	17	3.1
		Not Indigenous	530	96.9
Q 0003: Country of Birth	538	Australia	409	76.0
		Other (English 1st language)	98	18.2
		Other	31	5.8
Q 0004: Age	547	20-30yrs	83	15.2
		31-40yrs	94	17.2
		41-50yrs	133	24.3
		51-60 yrs	173	31.6
		>60yrs	64	11.7
Q 0005: Single/ Couple	547	Partnered	393	71.9
		Single	154	28.1
Q 0007: Children	542	No children	216	39.9
		Children	326	60.1
Q 0008: Family stage	324	Pre-school age	42	13.0
		Primary school	56	17.3
		High school	57	17.6
		Boarding HS, Uni	47	14.5
		Left school; at home	42	13.0
		Left school, left home	189	58.3

5.1.2 Professional characteristics of HPMS respondents.

A summary of the professional profiles of those who responded to the HPMS question concerning Current Profession is provided in Table 5.2. Nursing practitioners were most strongly represented (257; 48.1 %), with Allied health

practitioners (144; 27.0%) the second most represented, then medical practitioners (79; 14.8%). "Other" professional categories (for example, students; provisionally registered professionals) comprised 10.1% (54).

Approximately 458 (85.8%) of the 534 who responded to the question concerning Country of Initial Training, were trained in Australia. Of the 524 respondents to this question, 345 (65.8%) had some form of postgraduate specialist training.

Respondents' work experience in terms of remoteness of location is outlined in Table 5.2, using the ARIA+ remoteness classification. The majority of practitioners had wide work experience by location, including Major City (336: 64.7%), Regional (360: 69.4%), Remote (290; 55.9%) and Very Remote (325;62.7%) work experience, including 218 (42.0%) with Very Remote Indigenous community experience. Other very remote work experience included town, mining, and overseas work.

Of the total sample, 218 (42.1%) currently worked in major cities or regional zones and 354 (68.4%) in remote or very remote zones. Some respondents reported working in two zones concurrently, using FlyIn /FlyOut (FIFO) or DriveIn/DriveOut (DI/DO) arrangements. This explains the percentages for Q0015 summing to above 100%.

Table 5.2
HPMS Respondents' Professional Profiles

HPMS Question	Total response	Variable Option	*n*	%
Q 0009: Profession	534	Nursing	257	48.1
		Medical	79	14.8
		Allied health	144	27.0
		Other eg student	54	10.1
Q 0010: Country of initial training (N = 534)		Australia	458	85.8
		Other	76	14.2
Q 0011: Post grad Specialisation	524	Yes	345	65.8
		No	179	34.2
Q 0017: Very Remote Work Experience (any Category)	518	Yes	325	62.7
		No	193	37.3
Q 0014 Work experience - by remoteness level and Very Remoteness (VR) sub category	519	Major cities	336	64.7
		Regional	360	69.4
		Remote	290	55.9
		Very Remote (VR) town	151	29.1
		VR Indigenous c'y	218	42.0
		VR Mining	43	8.3
		VR other Aus	62	11.9
		VR O/seas	41	7.9
		Rural/remote (O/seas)	81	5.6
Q 0015 Current Workplace - by remoteness zone	518	Major city	67	12.9
		Regional	151	29.2
		Remote	161	31.1
		VRemote (all types)	193	37.3
Q 0012 Current Workplace - by employer	534	Gov't dept (non hospital)	222	41.6
		Hospital	138	25.8
		Aboriginal community controlled HS	49	9.2
		Other NGO	68	12.7
		Aid agency	3	.06
		Recruitment/locum agency	43	8.1
		Private incl self employed	82	5.4
		Tertiary	24	4.5
		Training placement	2	.4

A summary of the HPMS sample showing respondents' gender by profession

frequencies is presented in Table 5.3. Female nurses were under-represented

compared with the Australian Institute of Health and Welfare online across-

Australia workforce data for 2014-15 (AIHW, 2016), by 8.0%. Accordingly,

male nurses were over-represented compared with the national average. In

contrast, female medical practitioners were substantially over-represented as were

female allied health practitioners, compared with the national workforce. A major

factor in these differences was the HPMS sample's much higher proportion of

practitioners working very remote than in the national health workforce. For

example, the proportion of all nurses currently working very remote in the HPMS

sample (2013/14) was 37.3%, as compared with 0.7% in the national health

workforce in 2007 (being the most recent such AIHW figures available at time of

writing).

Table 5.3
*Gender by Profession: HPMS samples compared with Australian health
workforce means*

Gender	Nursing	% Sample (Aust'n Work-force)	Medical	% Sample (Aust'n Work-force)	Allied Health	% Sample (Aust'n Work-force)	Other Eg conditional registrant	% Sample	Total
Female	209	81.3 (89.3)	47	59.5 (40.1)	115	79.9 (~67.0)	42	77.8	413
Male	48	18.7 (10.7)	32	40.5 (59.9)	29	20.1 (~33.0)	12	22.2	121
Total	257	100.00 (100.0)	79	100.0 (100.0)	144	100.0 (100.0)	54	100.0	534

5.2 Developing the Subscales from the HPMS

The first step in distilling the motivation subscales from the HPMS data was

to gather groups of HPMS items into domains of potentially related motivational

content. The groundwork for this process had been laid at the HPMS construction

phase, when each item was originally inspired by one or other of the broad

domains in Figure 4.2. The items were re-assessed once the HPMS data had been

collected. Each item was allocated to the most appropriate domain, usually a sub-

domain of one of those in Figure 4.2, on the basis of its apparent conceptual

sharing with that domain.

Table 5.4

Work Motivation Domains Spanned by HPMS Items

Domains of intrinsic work motivation	Domains of extrinsic work motivation
1. Autonomy	5. Lifestyle/Living environment
2. Fit and belonging	6. Monetary
3. Mission and meaning	7. Preferred ways of working
4. Stimulation	8. Professional advancement
	9. Relationships

Descriptive statistics were provided for every domain and the relevant

output of PCA of each domain was presented. The PCAs revealed the

possible underlying structural associations between the items. Direct Oblimin

rotation was then used to assist in the interpretation. After the first rotation,

items which did not meet various criteria (see Chapter 4: Method) were

removed in search of the optimal solution. The preferred solution was then

tested using an alternative factor extraction technique, PAF, to ensure that the

solution was resilient across at least two extraction techniques, as explained

in Method.

5.2.1 Domain 1: AUTONOMY.

The Autonomy domain contained the 12 items (see Table 5.5) expected to

reflect an aspect of autonomy relating to work motivations. To maintain

consistency in measuring a respondent's work autonomy preferences, the scoring

was reversed (denoted "R") for those eight items that targeted low autonomy

related preferences. The respondents who rated the reversed item as "Very like me" were scored 1; and as "Very unlike me", were scored 6. Thus, a high total score for all the items was expected to reflect a high overall preference for being autonomous at work.

Table 5.5
Autonomy Domain: Initial Items

1. I am more inclined to stay in a job if I am expected to consult with other staff frequently (R);
2. I am more inclined to stay in a job if I have a significant management role;
3. I am more inclined to stay in a job if I am free to do my job with very little managerial oversight;
4. I am more inclined to stay in a job if I get frequent positive feedback about my work from management (R).
5. I am more inclined to stay in a job if I have management at a good distance from my workplace;
6. I am more inclined to stay in a job if I have ready access to expert clinical support (R);
7. I am more inclined to stay in a job if I am central to keeping the service running;
8. I would quit a job where my employer does not show strong leadership in what is expected (R);
9. I would quit a job where I feel professionally isolated a lot of the time (R);
10. I would quit a job where I get very little positive feedback from management and patients/clients (R);
11. Wherever I work, I feel the need to be able to regularly access a mentor (R);
12. Wherever I work, I feel the need to have frequent and easy access to good clinical supervision (R).

5.2.1.1 *Descriptive statistics.*

Relevant descriptive statistics for the Autonomy domain are presented in Table 5.6. The sample number of respondents to items in this domain ranged from 454 (83.0%) to 460 (84.1%). The matter of such missing data was noted in Section 5.1. All score values fell within the expected range (1-6) for all items. Mean item scores ranged from 2.21 (Item 6) to 4.76 (Item 3). The skewness data did not indicate any grossly non-normal item distributions.

Table 5.6
Autonomy Domain: Descriptive Statistics

Item	N		Mean	Std. Dev'n	Skew	Min	Max
	Valid	Missing					
2.	459	88	3.75	1.35	-.15	1	6
3.	459	88	4.76	1.10	-.76	1	6
5.	457	90	3.97	1.21	-.27	1	6
7.	457	90	3.83	1.23	-.18	1	6
9.	456	91	3.66	1.36	-.11	1	6
10.	456	91	3.34	1.37	.06	1	6
11.	457	90	2.62	1.28	.80	1	6
12.	454	93	2.84	1.31	.58	1	6
1.	460	87	2.69	1.16	.51	1	6
4.	458	89	2.69	1.13	.54	1	6
6.	459	88	2.21	1.02	.91	1	6
8.	458	89	2.82	1.22	.40	1	6

5.2.1.2 *Exploratory Factor Analysis.*

The factorability of this set of items was confirmed: every column and row of the inter-item correlations matrix carried at least one correlation above 0.3, the KMO measure of sampling adequacy was 0.73, and the Bartlett's Test of Sphericity was highly significant ($p < 0.001$). PCA initially produced four components with eigenvalues above 1.0, explaining 25.9%, 15.8%, 11.5% and 8.5% of the total variance respectively, making a cumulative total of 61.7% of the variance explained. The scree plot (see Figure 5.1) suggested that retaining four

components could be optimal, as this was the number of components above the

sharpest change in angle, at Component 5.
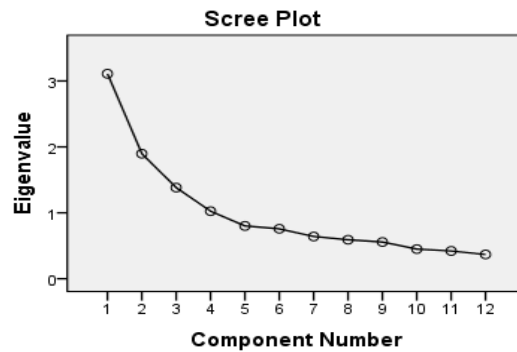
Figure 5.1. Autonomy domain's PCA scree plot

(As stated in Method, all such scree plot figures shown in this chapter were produced using IBM.SPSS Version 19)

To check this estimate, Parallel Analysis (Patil et al 2007) was carried out,

based on the four PCA component best estimate and the domain's 12 items.

Following the method described in Chapter 4, Table 5.7 indicates that the best

number of components to accept for further work is the component number that

lies one before the PA component that first exceeds the PCA eigenvalue. Here,

PA component 4 (1.10) is the first one to exceed PCA Component 4 (1.03),

therefore assessing the optimal solution as involving three components.

Table 5.7.
Autonomy Domain: Parallel Analysis: 12 variables

Component	PCA Eigenvalue	PA Eigenvalue Mean	Decision:
1	3.11	1.27	Accept
2	1.90	1.20	Accept
3	1.38	1.15	Accept
4	1.03	1.10	Reject

The unrotated Component Matrix (see Table 5.8) showed seven items loading above .4 on Component 1, with several medium or stronger loadings on the other three components. This pattern indicates a multi-component solution as optimal.

Table 5.8

Autonomy: Unrotated Component Matrix

	Component			
Item	1	2	3	4
12	.70			.36
4	.62	.30		
6	.62			.49
1	.55		.39	
10	.55		-.44	
9	.52	.49		
3		.66	.46	
7	-.34	.59		
2	-.40	.55	-.26	.45
5		.50	.57	-.33
8	.42	.30	-.57	

Loadings < .30 not shown

Based on all of the above, a three-component solution was selected for further PCA and rotated, using Direct Oblimin. The Pattern Matrix in Table 5.9 finds Component 1 with seven items loading above .4. Only two items load on Component 2 above .4, rendering it unviable. Three items load above .4 on Component 3, with two other items cross-loading with Component 1.

Table 5.9

Autonomy: Three Factor Rotation, 12 Items

Item no.	Component		
	1	2	3
2	-.69		
1	.69		
11	.62		
10	.60		
7	-.57	.34	
12	.52		-.34
6	.47		-.33
3		.80	
9		.77	
8			-.78
4			-.75
5			-.66

Direct Oblimin; Loadings < .3 not shown

5.2.1.3   The two-factor solution.

Accordingly, a two-component, 12-item solution was extracted and rotated

11 times, using PCA and Direct Oblimin, to produce the matrix in Table 5.10.

Eight items loaded above .40 on Component 1 and five items loaded above .40 on

Component 2. Item 9 cross-loaded, with one strong loading on Component 1.

Items 1 and 4 cross-loaded with neither very disparate nor strong loadings,

leading to their deletion in the next iteration.

Table 5.10

Autonomy: Two Factors, 12 Items: Pattern Matrix

Item	Component	
	1	2
12	.72	
11	.72	
9	.64	.34
10	.61	
6	.58	
4	.50	-.45
8	.49	
1	.47	-.31
7		.66
3		.63
2		.63
5		.48

Loadings < .3 not shown.

The resultant 10 item PCA produced the Pattern and Structure coefficients shown in Table 5.11. Six items loaded on Component 1 at or above 0.55, with four items loading at or above 0.57 on Component 2. The Structure Matrix, also listed in Table 5.11, very closely resembles the Pattern Matrix, reflecting their very low inter-component correlation (- 0.01). None of the communalities indicated the need for further item removal. The Total Variance Explained by the two components was 44.1%.

Table 5.11
Autonomy: PCA, Two Factors, 10 Items

Item	Pattern Coefficients		Structure coefficients		
	Comp 1	Comp 2	Comp 1	Comp 2	Communality
12.	**0.74**	-0.06	0.74	-0.07	0.55
11.	**0.73**	-0.18	0.74	-0.19	0.57
9.	**0.65**	0.30	0.64	0.29	0.50
10.	**0.62**	0.09	0.62	0.08	0.39
6.	**0.58**	-0.21	0.58	-0.22	0.38
8.	**0.55**	0.07	0.55	0.06	0.30
3.	0.20	**0.69**	0.19	0.69	0.33
7.	-0.16	**0.67**	-0.17	0.67	0.48
2.	-0.18	**0.60**	-0.19	0.60	0.39
5.	0.12	**0.57**	0.11	0.57	0.33

All loadings shown; pattern matrix loadings >.4 shown in **bold**.

5.2.1.4   *Comparing the solutions using Principal Axis Factoring.*

Using the 10-item, two-component solution data, PAF was used to test the resilience of the solution across extraction techniques. The solution produced was very similar to that produced by PCA (Table 5.12), in the magnitude and order of loading on the two components, indicating that the two-factor solution is resilient across extraction methods.

Table 5.12

Autonomy: Two factors, 10 items: Comparing PCA and PAF Solutions

	Pattern			
Item	PCA	PAF	PCA	PAF
	C1	F1	C2	F2
12.	.74	.69		
11.	.73	.69		
9.	.65	.55	.30	
10.	.62	.50		
6.	.58	.48		
8.	.55	.42		
3.			.69	.54
7.			.67	.53
2.			.60	.45
5.			.57	.39

Loadings<.30 not shown.

5.2.1.5   Autonomy: Summary and interpretation.

Two components of work motivation measure were extracted from the

Autonomy domain as follows. **Component 1** comprised six items all relating to

felt need for professional and clinical service supports and workplace guidance as

listed below. On the basis of their content in common, this subscale is entitled

Clinical self-containment. The items are listed in decreasing order of loading

weight. The cross-loading Item 9 is allocated to Component 1, on which it loads

considerably more strongly than on Component 2. All items are reverse scored, so

that a high score indicates a "very unlike me" rating for each item:

12. *Wherever I work, I feel the need to have frequent and easy access to good*

   clinical supervision (R).

11. *Wherever I work, I feel the need to be able to regularly access a mentor*

   (R);

9. *I would quit a job where I feel professionally isolated a lot of the time (R).*

10. *I would quit a job where I get very little positive feedback from management and patients/clients (R);*

6. *I am more inclined to stay in a job if I have ready access to expert clinical support (R).*

8. *I would quit a job where my employer does not show strong leadership in what is expected (R).*

Component 2 comprises four items relating to management interest, belief in own managerial competence, and inclination to manage. This subscale is therefore entitled **Managerial self-confidence.** The four items are listed below in decreasing order of loading magnitude; there was no reverse scoring:

3. *I am more inclined to stay in a job if I am free to do my job with very little managerial oversight;*

7. *I am more inclined to stay in a job if I am central to keeping the service running;*

2. *I am more inclined to stay in a job if I have a significant management role;*

5. *I am more inclined to stay in a job if I have management at a good distance from my workplace.*

These subscales, along with all those following, are described statistically in Chapter 6.

5.2.2 Domain 2: FIT and BELONGING.

The 11 items listed in Table 5.13 were grouped on the basis of their conceptual commonalities into the domain of work motivations named *Fit and Belonging*. These items address sense of social fitting-in and belonging - to a team, peer group, and community. Five items were reverse scored (R) to ensure that scoring for every item was mutually consistent. Each item was rated on a six-point Likert scale ranging from "Very unlike me" to "Very like me".

Table 5.13
Domain 2: Fit and Belonging: Initial Items

---

1. Usually I feel the odd one out socially, wherever I am. (R)
2. Given the choice, I will choose a job that helps me feel a good sense of place and belonging, both in and out of work.
3. Given the choice, I will choose a job that helps me feel I am part of a committed team.
4. I believe that getting involved in community activities is essential for my effective primary health care practice.
5. I believe that re-locating to a new job is a good way for me to find emotional healing. (R)
6. I am committed to avoiding the conflicts I've met in previous workplaces. (R)
7. In choosing any job, my big priorities include maintaining my out-of-work close relationship network with regular face to face contact.
8. In choosing any job, my big priorities include avoiding the people hassles I faced in past workplaces. (R)
9. In choosing any job, my big priorities include feeling familiar and comfortable in the community I live in.
10. Wherever I work, I feel the need to feel that both I and those close to me are well respected by the community we live in.

5.2.2.1   Fit and Belonging: descriptive statistics

The descriptive statistics for the Fit and Belonging domain are listed in Table 5.14. The number of completed surveys for each item ranged from 447 (81.7%) to 463 (84.6%). Item mean scores ranged from 2.71 (Item 5) to 5.19 (Item 3). All rating score values fell within the expected range (1 to 6).

Table 5.14

Fit and Belonging: Descriptive Statistics

Item no.	Valid *n*	Missing *N*	Mean	Median	St Dev'n	Skew	Min	Max
1	463	84	2.77	2.00	1.35	.48	1.00	6.00
2	460	87	5.05	5.00	.85	-.87	1.00	6.00
3	459	88	5.19	5.00	.91	-1.40	1.00	6.00
4	455	92	4.56	5.00	1.20	-.70	1.00	6.00
5	453	94	2.71	3.00	1.40	.58	1.00	6.00
6	449	98	3.73	4.00	1.42	-.27	1.00	6.00
7	452	95	3.69	4.00	1.39	-.24	1.00	6.00
8	447	100	3.23	3.00	1.48	.18	1.00	6.00
9	455	92	4.54	5.00	1.18	-.88	1.00	6.00
10	453	94	4.68	5.00	.95	-.58	1.00	6.00
11	453	94	3.32	3.00	1.33	.16	1.00	6.00

5.2.2.2   Fit and Belonging: Exploratory factor analysis.

Initial PCA confirmed this dataset to be suitable for PCA. Correlations of .3 or above were well represented in the inter-item correlations matrix; the KMO measure of sampling adequacy was a sufficient 0.68; the Bartlett's Test of Sphericity was highly significant ($p < 0.001$).

Three components with eigenvalues above 1.0 were produced, explaining 24.7%, 17.5%, and 10.9% of the total variance respectively, being a cumulative 53.1% of explained variance. These results suggested that a three-component solution would be optimal. However, inspection of the scree plot (see Figure 5.2) indicated a two-component solution to be optimal: only two components sit above the sharpest angle in the plot, at Component 3.
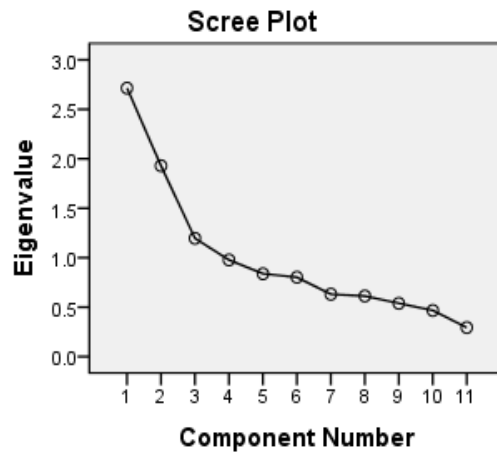
Figure 5.2. Fit and Belonging domain: PCA scree Plot (SPSS v.19 image)

The unrotated Component Matrix in Table 5.15 indicated a multidimensional solution, with six of the eleven items loading above .5, and three loading below .4 on the first component, with several strong loadings on Components 2 and 3.

Table 5.15
Fit and Belonging: Unrotated Component Matrix

	Component		
Item no.	1	2	3
10	.65	.30	
9	.64		
2	.61	.40	
7	.55		
3	.49	.44	
8	-.54	.65	
6	-.54	.57	
11		.55	-.37
1		.52	.38
4	.38		-.67
5	-.44		.55

All loadings < .30 not shown

Parallel Analysis (Patil et al. 2007), using 11 variables, 455 cases and 100 replications, supported a three-component solution (see Table 5.16), using the guidelines outlined in Chapter 4.

Table 5.16

Parallel Analysis (11 variables, 455 responses): Fit and Belonging Domain

Component no.	PCA Eigenvalue	Parallel Analysis Eigenvalue	No. of Components: Decision
1	2.715	1.2616	Accept
2	1.929	1.1843	Accept
3	1.196	1.1291	Accept
4	1.025	1.0769	Reject

A three-component solution was selected and rotated, using Direct Oblimin. The pattern matrix produced six items loading from moderately (Item 1, .44) to strongly (Item 2, .72) on Component 1. On Component 2, three items (6, 8, 11) loaded above 0.67, with Item 4 unevenly cross-loading on Component 2 (.32) and Component 3 (-.74). Only three items loaded above .3 on Component 3, with two cross-loading: Item 1 cross-loaded on Component 3 (.39) and Component 1 (.44), leaving this component unviable.

Accordingly, a two-component 11 item PCA solution was pursued. This produced Item 1 cross-loading weakly on both Components 1 and 2, which were strongly loaded by six and four items respectively. Item 1 was deleted in the next iteration, which extracted 2 components and 10 items.

The Pattern Matrix in Table 5.17 shows six items loading above .40 on Component 1, and four items loading above .40 on Component 2. Item 7 cross-loaded weakly on both components (Component 1: .41; Component 2: .31), leaving it open to deletion in the next iteration.

Table 5.17

Fit and Belonging Domain: Two Components, 10 items Pattern Matrix

	Component	
Item	1	2
2	.75	
10	.72	
3	.65	
9	.58	
4	.52	
7	.41	-.31
8		.86
6		.80
11		.60
5		.42

All loadings < .30 not revealed.

5.2.2.3   *The two factor nine item solution.*

In the next PCA iteration, item 7 was deleted, with two factors retained, then the solution was rotated, using Direct Oblimin. The resulting two factor/nine item solution loadings are shown in Table 5.18.

The Pattern Matrix shows five items (2, 10, 3, 9, 4) loading well above .4 on Component 1 and four items loading above .4 on Component 2. The two components inter-correlated weakly (.12), reflecting the close similarity between the Pattern and Structure matrices. The moderate to strong communalities (see Table 5.18) supported the retention of all nine items. The total variance explained by the solution was 47.6% (Components 1: 27.8%, Component 2: 19.8%).

Table 5.18

Fit and Belonging: PCA Pattern and Structure Coefficients: Two Components, Nine Items

Item No.	Pattern coefficients		Structure coefficients		Communality
	Component 1	Component 2	Component 1	Component 2	
2.	**.76**	-.02	.75	.07	.54
10.	**.73**	.08	.74	.16	.53
3.	**.66**	-.09	.65	-.02	.51
9.	**.57**	.22	.59	.29	.44
4.	**.54**	-.08	.53	-.01	.67
8.	.01	**.86**	.11	.86	.73
6.	.08	**.82**	.17	.83	.62
11.	-.23	**.59**	-.16	.56	.47
5.	.23	**.44**	.28	.46	.57

5.2.2.4 *Fit and Belonging: Testing the PCA solution's robustness.*

The final PCA solution was then analysed using PAF; see Table 5.19. The PAF pattern matrix paralleled the PCA pattern matrix very closely, with the same five items loading above .4 in the same order of magnitude on Factor/Component 1. All four items on PAF pattern matrix Factor 2 loaded in the same order as the items in the PCA Component 2, but with item 5 not loading above .30. The PAF Structure Matrix was also very similar to the PAF Pattern Matrix, reflecting the very low inter-correlation between the two components. These data demonstrated resilience of the two-component, nine-item PCA solution to different methods of extraction; the solution is accepted.

Table 5.39

Fit and Belonging: PAF Pattern and Structure Matrices Two Factors, Nine Items

	Pattern			
Item	PAF Factor 1	PCA Comp 1	PAF Factor 2	PCA Comp 2
2.	.70	.76		
10.	.65	.73		
3.	.54	.66		
9.	.46	.57		
4.	.38	.54		
8.			.89	.86
6.			.72	.82
11.			.37	.59
5.			<.30	.44

Loadings < .3 not shown.

5.2.2.5   *Fit and Belonging: Summary and interpretation.*

The five items loading above .5 on the PCA Component 1 above relate to sense of place and belonging, winning respect and acceptance and involvement in the work and living communities. These infer wants and needs concerning both the workplace and its surrounding community and are entitled ***Belonging Needs.*** Their constituent items follow, in descending order of loading magnitude; none are reverse scored:

2. *Given the choice, I will choose a job that helps me feel a good sense of place and belonging, both in and out of work;*

10. *Wherever I work, I feel the need to feel that both I and those close to me are well respected by the community we live in;*

3. *I will choose a job that helps me feel part of a committed team;*

9. In choosing any job, my big priorities will include feeling familiar and comfortable in the community I live in;

4. I believe that getting involved in community activities is essential for my effective primary health care practice.

The four items comprising the PCA **Component 2** tap motivations relating to the avoiding of previous workplace stressors and non-essential community engagement, while seeking emotional healing. The subscale is entitled ***Avoidance Needs***. Scoring of all this scale's items were reversed, so that a high score reflected a low avoidance need and a low score reflected high avoidance need. The subscale comprises the following four items, in descending order of loading magnitude:

8. In choosing any job, my big priorities include avoiding the people hassles I faced in past workplaces (R);

6. I am committed to avoiding conflicts I've met in previous workplaces (R);

11. Wherever I work, I feel the need to feel anonymous in community after hours. (R);

5. I believe that re-locating to a new job is a good way for me to find emotional healing (R).

5.2.3 Domain 3: MISSION and MEANING.

The domain Mission and Meaning comprised the 14 items listed in Table 5.20, which were assessed as sharing common conceptual ground, including compassion, altruism, meaning, purpose and mission-related work motivations. The 14 items were each rated by the HPMS respondent from "Very unlike me" (scored 1) to "Very like me" (scored 6), on a Likert scale. No reversed scoring

was necessary: a high score on all items indicated high preference, need for or attraction to facets of Mission and Meaning, in or from work.

Table 5.20
Domain 3: Mission and Meaning: 14 Items

1. In considering a new job, I prefer one that enables me to serve my mission to help people in real need.

2. In considering a new job, I prefer one that offers me a strong sense of purpose.

3. Given the choice, I will choose a job that helps me achieve goals inspired in me by a strong role model.

4. I believe that certain experiences in my early years still influence my career decisions.

5. I am committed to work that is consistent with my spiritual belief system.

6. I am committed to standing up for the rights of those with less say, even when it costs me in some.

7. I am committed to making a substantial difference in this world via my work.

8. I am committed to providing care for those who are under-served.

9. I am committed to delivering care to those who are unable to maintain good health without help.

10. I am committed to having work which gives me a strong sense of meaning in life.

11. I am committed to putting duty before my own needs in health practice.

12. I am committed to respond to a calling to help bring healing to people in great need.

13. Wherever I work, I feel the need to express my gift for helping those who are suffering.

14. Wherever I work, I feel the need to feel I am carrying out God's will in helping people less well off than me.

5.2.3.1 *Descriptive statistics.*

Descriptive statistics and frequencies are presented in Table 5.21. Mean scores ranged between 2.07 (item 14) to 5.11 (item 2). All items showed score distribution across the full possible range (1-6). For the items regarding purpose, meaning and mission the data were somewhat skewed towards "Very like me". The 88-96 missing cases were due to the tendency of approximately 20% of respondents to quit the survey at around HPMS Q 0028, as discussed in Chapter 4: Method.

Table 5.21

Mission and Meaning Domain: Descriptive Statistics

Item no.	n		Mean	Median	Std. Deviation	Skewness	Min	Max
	Valid	Missing						
1.	457	90	4.82	5.00	1.15	-1.13	1.00	6.00
2..	455	92	5.11	5.00	1.04	-1.37	1.00	6.00
3.	459	88	4.56	5.00	1.17	-.89	1.00	6.00
4.	457	90	3.71	4.00	1.58	-.30	1.00	6.00
5.	451	96	3.76	4.00	1.62	-.36	1.00	6.00
6.	455	92	4.76	5.00	.99	-.78	1.00	6.00
7.	453	94	4.60	5.00	1.23	-.95	1.00	6.00
8.	455	92	5.02	5.00	.87	-1.08	1.00	6.00
9.	458	89	4.98	5.00	.89	-.88	1.00	6.00
10.	454	93	5.10	5.00	.98	-1.26	1.00	6.00
11.	455	92	3.84	4.00	1.27	-.30	1.00	6.00
12.	451	96	3.92	4.00	1.53	-.51	1.00	6.00
13.	447	100	3.89	4.00	1.49	-.48	1.00	6.00
14.	443	104	2.07	1.00	1.53	1.23	1.00	6.00

5.2.3.2   *Exploratory Factor Analysis.*

Initial PCA data confirmed the factorability of the datafile. There were
numerous inter-item correlations above 0.3, the KMO measure of sampling
adequacy was 0.88, and the Bartlett's Test of Sphericity was highly significant
($p < 0.001$). PCA produced three components with eigenvalues above 1.0,
explaining 39.4%, 10.4% and 7.6% of the variance respectively, totaling 57.4% of
explained variance. The scree plot in Figure 5.3 presented almost identical angles

at Components 2 and 3, indicating that either a one- or two-component solution could be optimal.
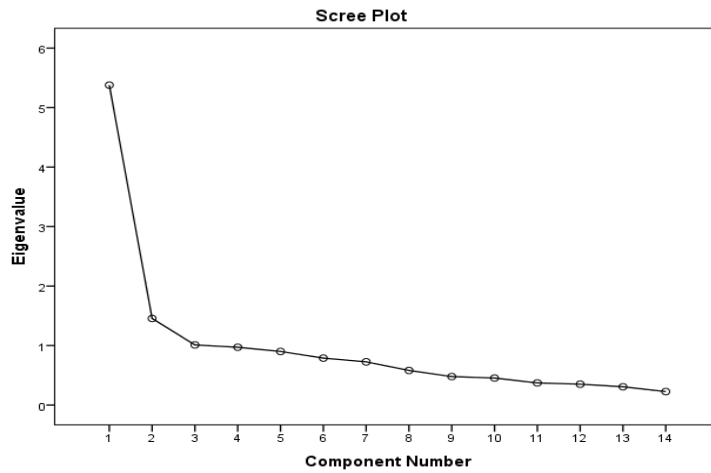
Figure 5.3. Scree plot from PCA of Mission and Meaning (SPSS v19 image)

Parallel Analysis clarified this ambiguity: the first PA eigenvalue to exceed the PCA eigenvalues was the third one, supporting a two-component solution as optimal. In addition, the unrotated 14-item Component Matrix (see Table 5.22) presented three components, all with at least one item loading above .6 and at least three loading at or above .4, altogether suggesting a multi- rather than uni-dimensional solution as optimal.

Table 5.22

Mission and Meaning: Two Components, 14 Items Pattern Matrix

Item no.	Component	
	1	2
10.	**.83**	-.10
8.	**.81**	-.05
9.	**.79**	-.18
2.	**.75**	-.01
7.	**.73**	.13
1.	**.68**	.18
6.	**.60**	-.01
3.	**.55**	-.05
11.	**.40**	.23
4.	.22	.10
14.	-.21	**.88**
5.	.09	**.66**
13.	.34	**.58**
12.	**.46**	**.51**

All loadings ≥ .4 shown in bold

5.2.3.3   *Refining the PCA solution.*

To achieve an optimal solution in the next iteration, three items were removed: Item 4 (failed to load above .4); item 11 (failed to load above .4); and item 12 (similar cross-loadings on both components).

After removal of the three items, PCA with Oblimin rotation was repeated on the remaining 11-item dataset. This solution explained a total of 55.6% of the variance. The two components correlated with .30, being sufficiently independent to not combine them, while reflecting the moderate matching between the pattern and structure matrix coefficients shown in Table 5.23. Eight pattern matrix items loaded above .5 on Component 1, with three items loading strongly on Component 2. Item 13 cross-loaded (.36, .56) on both components, with the significantly stronger loading on Component 2, to be later allocated to Component 2 in the Summary and Interpretation section.

Table 5.23

Mission and Meaning: Two Components, 11 items; Pattern and Structure Matrices

Item	Pattern Comp 1	Pattern Comp 2	Structure Comp 1	Structure Comp 2	Comm-unality
10.	**.82**	-.05	0.80	0.19	0.63
8.	**.80**	-.02	0.80	0.22	0.68
9.	**.78**	-.17	0.73	0.07	0.56
2.	**.74**	.06	0.76	0.28	0.58
7.	**.73**	.17	0.78	0.39	0.62
1.	**.68**	.21	0.74	0.42	0.59
6.	**.59**	.04	0.60	0.21	0.57
3.	**.55**	-.05	0.53	0.12	0.52
14.	-.17	**.87**	0.10	0.82	0.69
5.	.11	**.71**	0.32	0.74	0.58
13.	.36	**.56**	0.53	0.67	0.61

5.2.3.4   *Comparison: PCA and PAF analyses.*

The two component, 11-item solution was analyzed using PAF, producing

the pattern matrix compared in Table 5.24 with the PCA matrix. Both analyses

produced very similar components/factors of eight and three items respectively,

sufficiently similar in item loadings to accept the solution as robust across method

of analysis.

Table 5.24
Mission and Meaning: PCA/ PAF Comparison

	Pattern		Pattern	
	PCA	PAF	PCA	PAF
Item	C1	F1	C2	F2
10	.82	.80		
8	.80	.78		
9	.78	.72		
2	.74	.70		
7	.73	.70		
1	.68	.65		
6	.59	.53		
3	.55	.46		
14			.87	.72
5			.71	.50
13			.56	.47

Loadings < .40 not shown

5.2.3.5 *Mission and Meaning: Summary and interpretation.*

The following eight Mission and Meaning items loaded strongly on the PCA
Pattern Matrix **Component 1**, listed in decreasing order of loading. They
predominantly relate to concern for others less fortunate, for finding meaning and
purpose by helping such people and contributing to a more equitable world. This
subscale is entitled **Compassion:**

10. *I am committed to having work which gives me a strong sense of*
    meaning in life;

8. *I am committed to providing care for those who are underserved;*

9. *I am committed to delivering care to those who are unable to maintain*
   good health without help;

2. *In considering a new job, I prefer one that offers me a strong sense of*
   purpose;

7. *I am committed to making a substantial difference in this world via my work;*

1. *In considering a new job, I prefer one that enables me to serve my mission to help people in real need;*

6. *I am committed to standing up for the rights of those with less say, even when it costs me in some way;*

3. *Given the choice, I will choose a job that helps me achieve goals inspired in me by a strong role model.*

The following three items loaded strongly on **Component 2** and are listed in decreasing order of loading. They predominantly reflect spiritual beliefs that influence work motivations. This subscale is entitled **Spiritual Beliefs**:

14. *Wherever I work, I feel the need to feel I am carrying out God's will in helping people less well off than me.*

5. *I am committed to work that is consistent with my spiritual belief system.*

13. *Wherever I work, I feel the need to express my gift for helping those who are suffering.*

5.2.4 Domain 4: NEED for STIMULATION.

The Need for Stimulation domain comprised the 10 HPMS items listed in Table 5.25 which shared motivational elements relating to workplace stimulation. As with all the motivational items in the HPMS, these were rated from "Very unlike me" to "Very like me" on a 6-point Likert scale. Again, to maintain consistency in measuring the domain's theme, scoring was reversed (denoted "R") for those five items that tapped low stimulation preferences.

Table 5.25
Domain 4: Need for Stimulation: 10 Items

---

1. Usually I prefer routine to variety (R);

2. Usually I will take risks to gain new experiences;

3. Usually I choose work that involves adventure;

4. Usually I love having to adapt to new situations at work;

5. Usually I work best where certainty prevails (R);

6. Usually I would refuse to drive through the bush on dirt roads at night (R);

7. Usually I am considered by some as too high a risk taker;

8. Usually I get bored with any job after a year or two;

9. I would quit a job where I sometimes have to deal with threatening and aggressive

behaviour (R);

10. I need to live in a close-knit community where most people seem to know each other (R).

5.2.4.1   Need for Stimulation: Descriptive statistics.

The descriptive statistics for the domain Stimulation are listed in Table 5.26.

Sample numbers for each item ranged from 455 (83.2%) to 463 (84.6%). These

are very similar to all the other domains, for reasons outlined previously.

Minimum and maximum score values are all within the six-point possible range

and there was a good spread of scores, with item means ranging from 2.54 (*SD*

1.20) to 4.60 (*SD* 1.51). Several item score distributions were substantially

skewed, so not normally distributed.

Table 5.26

Stimulation Domain: Descriptive Statistics

Item No.	N Valid	Missing	Mean	Median	Std .Dev'n	Skew-ness	Min	Max
2.	460	87	4.50	5.0	1.10	-.75	1.0	6.0
3.	462	85	4.52	5.0	1.14	-.72	1.0	6.0
4.	460	87	4.59	5.0	1.12	-.74	1.0	6.0
7.	461	86	2.54	2.0	1.20	.64	1.0	6.0
8.	460	87	3.16	3.0	1.51	.33	1.0	6.0
1.	463	84	3.95	4.0	1.44	-.31	1.0	6.0
9.	460	87	4.00	4.0	1.34	-.52	1.0	6.0
6.	463	84	4.60	5.0	1.51	-.94	1.0	6.0
5,	461	86	2.65	2.0	1.23	.61	1.0	6.0
10.	455	92	3.44	3.0	1.34	.26	1.0	6.0

5.2.4.2   *Exploratory Factor Analysis: Need for stimulation.*

The preliminary PCA demonstrated the dataset to be factorable, producing a KMO of .75 and a significant ($p < 0.001$) Bartlett's Test of Sphericity. The scree plot (see Figure 5.4) suggested either a one- or a three-component solution could be optimal for this subscale, based on the location of the two similarly large angles of change, at Components 2 and 4.
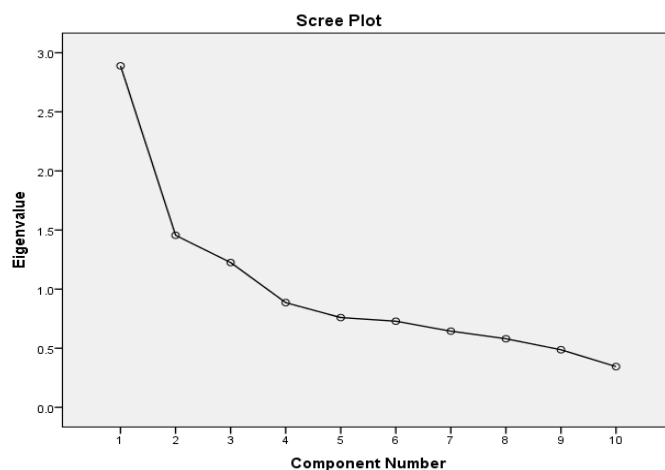
Figure 5.4. Scree plot from PCA stimulation (SPSS v19 image)

Parallel Analysis, based on 455 cases, 10 variables and 100 trials (see Table 5.27), indicated that a three-component solution would most likely be optimal.

Table 5.274
Stimulation Domain: Parallel Analysis

Component	PCA Eigenvalue	PA Eigenvalue	Decision
1	2.889	1.233	Accept
2	1.455	1.160	Accept
3	1.225	1.108	Accept
4	0.886	1.063	Reject

The unrotated Component Matrix (see Table 5.28) suggested a multidimensional solution would be optimal. Only three items failed to show a dominant loading on the first component extracted, and there were three and two dominant loadings respectively on the second and third components.

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Table 5.28
Stimulation Domain: Unrotated Component Matrix

Item	Component 1	Component 2	Component 3
3.	.78	-.31	
2.	.72	-.34	
4.	.71		
5.	.53	.51	
7.	.52	-.34	
9.	.36	.56	-.33
1.	.51	.54	
8.	.40		.64
10.		.35	.63
6.	.39	.30	-.49

Loadings < .30 not shown

Accordingly, the 10-item dataset was rotated, using Direct Oblimin, while extracting three components. The resultant Pattern Matrix (see Table 5.29) showed four items cross-loading.

Table 5.59
Stimulation Domain: Three Components, 10 Items

Item	Component 1	Component 2	Component 3
3.	.82		
2.	.80		
4.	.69		
7.	.64		
9.		.74	
5.		.64	.31
1.		.63	.38
6.		.58	-.36
10.			.69
8.	.42		.63

Loadings < .30 not shown

5.2.4.3   Refining the solution.

The 10 item dataset was rotated with two components extracted, based on the extent of cross-loading on the three-component matrix above. In this solution (see Table 5.30), item 10 failed to load above .30 on any component, so was removed.

The subsequent Pattern Matrix showed five items loading on Component 1 (ranging from .50 to .82) and four loading on Component 2 (ranging .55 to .73), with no cross-loading evident above .3.

Table 5.30

Stimulation: Pattern Matrix and Communalities: Two Components, Nine Items

Item	Component C1	C2	Communality
3.	.82		.70
2.	.78		.63
4.	.65		.52
7	.65		.40
8.	.50		.23
9.		.73	.50
5.		.69	.52
1.		.69	.50
6.		.55	.31

The Pattern and Structure Matrices were very similar, reflecting the relatively low inter-component correlation of .28. The cumulative total variance explained by the two components was 52.2%. The communalities provided no strong support for further deletions, noting that the communality of Item 6 is relatively low, but is supported by a moderately strong loading on Component 2.

5.2.4.4   *Comparing methods of analysis.*

The eight-item dataset was analysed using PAF to test the robustness of the PCA solution. The Pattern Matrices produced by the two methods are compared in Table 5.31. It is clear that they are very similar in item make-up and order of loading magnitude in each component, with some minor differences in descending

order of items. The interpretation of the two components was the same for both methods, hence the PCA solution was supported and accepted for interpretation.

Table 5.31
Need for Stimulation: PAF/PCA Solution Comparison

Item	PAF F1	PCA C1	PAF F2	PCA 2
3	.85	.84		
2	.77	.82		
4	.53	.66		
7	.47	.70		
5			.65	.72
1			.65	.73
9			.47	.70
6			.31	.51

Loadings < .3 not shown

5.2.4.5 *Stimulation: Description and interpretation.*

Component 1 comprises four items relating to appetite for risk, adventure and novelty. The subscale is entitled ***Challenge Seeker,*** comprising the following four items listed in descending order of loading weight and with no reversed scoring:

 3. Usually I choose work that involves adventure.

 2. Usually I will take risks to gain new experiences.

 7. Usually I am considered by some as too high a risk taker.

 4. Usually I love having to adapt to new situations at work.

Component 2 comprises four items all of which relate to work which requires flexibility, adaptability and resilience. They are all reverse scored, meaning that a high score on these items is a "Not very like me" rating. The subscale is entitled *Variety Seeker* and includes the following items:

9. I would quit a job where I sometimes have to deal with threatening and

    aggressive behaviour (R).

5. Usually I work best where certainty prevails (R).

1. Usually I prefer routine to variety (R).

6. Usually I would refuse to drive through the bush on dirt roads at night (R).

5.2.5 Domain 5: LIFESTYLE / LIVING ENVIRONMENT.

The Lifestyle/Living Environment domain encompassed eight motivation items listed in Table 5.32, which all relate to facets of lifestyle and environment surrounding a workplace that could help motivate job choice. These items were each rated from 1 (Very unlike me) to 6 (Very like me) on a Likert scale. Items 3 and 5 were reverse scored (R), so that a high self-rating score corresponded to "Very unlike" the respondent.

Table 5.32
Lifestyle / Living Environment Items

---

1.   Usually I prefer rural community living to city living.

2.   Usually I am excited by the idea of living in wilderness country.

3.   I would quit a job where the local climate makes life uncomfortable sometimes. (R).

4.   I am committed to choosing a work situation that allows me an optimally healthy lifestyle.

5.   Wherever I work, I feel the need to be within easy driving distance of major capital cities. (R)

6   Wherever I work, I feel the need to be inspired by the surrounding environment I live in.

7.   Wherever I work, I feel the need to establish a very comfortable work/leisure balance.

8.   Wherever I work, I feel the need to live in a close-knit community where most people know each other.

5.2.5.1   *Descriptive statistics.*

The descriptive statistics for this datafile are summarized in Table 5.33. The total number of valid and complete cases for each item ranged from 451 (82.5%) to 462 (84.5%), leaving the number of missing cases very similar to the other domains. All item rating values fell within the expected range (1 to 6). Mean item scores lay between 3.56 (Item 8) and 4.85 (Item 1). Three items showed some skewing (up to -1.1) in scoring distribution.

Table 5.33

Descriptive Statistics: Lifestyle/Living Environment Domain

Item no.	*N* Valid	Missing	Mean	Median	Std. Deviation	Skew	Min	Max
1	462	85	4.85	5.00	1.34	-1.06	1.00	6.00
2.	460	87	4.53	5.00	1.29	-.70	1.00	6.00
4.	451	96	4.46	5.00	1.17	-.84	1.00	6.00
6.	457	90	4.72	5.00	1.06	-1.00	1.00	6.00
5.	457	90	4.58	5.00	1.36	-.88	1.00	6.00
7.	457	90	4.72	5.00	1.11	-.98	1.00	6.00
8.	455	92	3.56	4.00	1.34	-.26	1.00	6.00
3.	461	86	4.37	5.00	1.21	-.56	1.00	6.00

5.2.5.2   Exploratory Factor Analysis.

Initial analyses confirmed factorability of this datafile. There was at least one correlation at or above 0.3 for each item in the inter-item correlation matrix; the KMO measure of MSA was 0.70; Bartlett's Test of Sphericity was significant ($p<$ 0.001); and all values on the anti-image matrix diagonal were at or above .66.

The unrotated PCA produced two components with eigenvalues above 1.0, explaining 28.3% and 25.1% of variance, for a cumulative total of 53.4% of the variance explained. The scree plot at Figure 5.5 shows an angle at Component 3 marginally larger than that at Component 4, suggesting a two-component solution.

Figure 5.5. Lifestyle/Living environment: PCA scree plot (SPSS v19 image)

The unrotated Component Matrix (see Table 5.34) suggested a

multidimensional solution, with a number of items failing to load substantially

and exclusively on the first component extracted.

Table 5.34
Unrotated Component Matrix for Lifestyle/Living Environment Items

	Component	
Item	1	2
5	.79	
3	.62	
4	-.55	.45
6	-.32	.70
1	.54	.60
7	-.52	.57
8		.56
2	.54	.54

Loadings < .30 not shown

Parallel Analysis (Patil et al., 2007), based on eight variables, 455 cases, and

100 replications, supported a two-component solution, as shown in Table 5.35.

Table 5.35
Lifestyle/Living environment: Parallel Analysis

	PCA	Parallel Analysis	
Component	Eigenvalue	Eigenvalue	Decision
1	2.27	1.20	Accept
2	2.01	1.13	Accept
3	0.95	1.07	Reject

5.2.5.3   *Refining the solution.*

The two-component solution was rotated using Direct Oblimin to produce the Pattern Matrix in Table 5.36. Four items (1, 2, 5, 3) loaded strongly on Component 1, with values ranging from .79 to .53. Four items loaded on Component 2 above .45, with items 5 and 3 loading lightly on Component 2 with significantly larger cross-loadings on Component 1. Item 8 cross-loaded with similar loadings on both components. This, combined with its relatively low communality (.31), supported item 8's deletion in the next iteration.

Table 5.36
Lifestyle/Environment Domain: Pattern Matrix

Item	Component	
	1	2
1.	.79	
2.	.75	
5.	.74	-.30
3.	.53	-.32
6.		.76
7.		.76
4.		.68
8.	.34	.45

Loadings < .30 not shown

The remaining seven items were rotated using Direct Oblimin (see Table 5.37. The Pattern Matrix showed simple structure with no significant cross-loading of items. Four items loaded on Component 1, ranging from .78 (item 1) to .55 (item 3), while three items loaded strongly on Component 2: items 7 (.80); 6 (.79); and 4 (.70).

The similar Structure and Pattern Matrices reflect their low inter-component correlation (-.1). Communalities ranged from .39 (item 3) to .65 (item 5).

Table 5.37
Lifestyle/Environment Pattern and Structure Coefficients

Item	Pattern coefficients		Structure coefficients		Communality
	Component 1	Component 2	Component 1	Component 2	
1.	**.78**	.19	.76	.12	.62
2.	**.78**	.20	.76	.12	.61
5.	**.73**	-.28	.76	-.35	.65
3.	**.55**	-.26	.57	-.31	.39
7.	-.03	**.84**	-.11	.81	.65
6.	.19	**.79**	.12	.77	.63
4.	-.15	**.70**	-.21	.71	.53

All figures in **bold** above are PCA derived pattern matrix loadings above .3.

5.2.5.4 *Comparing PCA and PAF outputs.*

The two-component solution was assessed using Principal Axis Factoring (see Table 5.38). The two methods produced very similar solutions, confirming the essential stability of the preferred solution across different extraction techniques.

Table 5.38
Lifestyle/Environment: PCA and PAF Pattern Matrix

Item	PCA C1	PAF F1	PCA C2	PAF F 2
1	**.78**	.68		
2	**.78**	.66		
5	**.73**	.67		
3	**.55**	.41		
7			**.80**	.72
6			**.79**	.67
4			**.70**	.55

5.2.5.5 *Lifestyle-environment: Description and interpretation.*

Component 1's four items related to choice of criteria associated with a job's geographic location. The last two items are negatively scored so that a high total score conveyed preference for features of living in the "bush". This also implies no felt need to avoid living in the bush. This subscale is entitled ***Living Location Preferences***; its constituent items are listed in decreasing order of loading weight:

1. *Usually I prefer rural community living to city living.*

2. *Usually I am excited by the idea of living in wilderness country.*

5. *Wherever I work, I feel the need to be within easy driving distance of major capital cities. (R)*

3. *I would quit a job where the local climate makes life uncomfortable sometimes (R).*

Component 2 was loaded by items that reflect motivations around seeking a healthy work/life balance within an uplifting surrounding environment; it was entitled ***Lifestyle***. The following three items loaded on Component 2, in decreasing order of weighting:

7. *Wherever I work, I feel the need to establish a very comfortable work/leisure balance.*

6. *Wherever I work, I feel the need to be inspired by the surrounding environment I live in.*

4. *I am committed to choosing a work situation that allows me an optimally healthy lifestyle.*

5.2.6 Domain 6: MONETARY.

Eight HPMS items were identified on empirical, theoretical, and shared conceptual grounds to combine in this monetary based domain of work

motivations. They ranged from purely financial to in-kind motivational incentives, including cash reward, support for professional development and living subsidies. They are listed in Table 5.39; none required reverse scoring.

Table 5.39
Monetary Domain: Initial Items

---

1. In choosing any job, my big priorities include negotiating a generous pay and annual leave package.
2. In choosing any job, my big priorities include continuing professional development costs being met by the employer.
3. In choosing any job, my big priorities include being able to obtain a scholarship to help me further my post graduate studies.
4. In choosing any job, my big priorities include to significantly increase my retirement funding.
5. In choosing any job, my big priorities include to receive allowances, tax breaks, and/or HECS pay outs.
6. In choosing any job, my big priorities include negotiating a contract with cash bonus for staying the full term.
7. In choosing any job, my big priorities include being provided with well subsidized accommodation.
8. In choosing any job, my big priorities include very good pay for any after-hours on-call and call-outs.

5.2.6.1   *Monetary Domain: Descriptive statistics.*

This domain's descriptive statistics are tabled in Table 5.40. The number of completed responses range from 446 to 455 for seven of the eight items. As for all the domains, the vast majority of missing cases were due to incomplete surveys. Item 3 (seeking a scholarship) had higher levels of missing data due to its limited application to the majority of respondents and the invitation to leave it blank if not applicable. The range of responses for all items lay within the limits 1-6. The items' means, standard deviations and mild skew ratings reflect distributions which did not strongly deviate from the normal.

Table 5.40
Monetary Domain: Descriptive Statistics

Item	N Valid	Missing	Mean	Std. Deviation	Skew	Min	Max
1	454	93	3.84	1.27	-.36	1.0	6.0
2	455	92	4.06	1.36	-.48	1.0	6.0
3.	427	120	3.34	1.52	.06	1.0	6.0
4.	454	93	3.52	1.43	-.08	1.0	6.0
5.	452	95	3.30	1.44	.12	1.0	6.0
6.	449	98	2.73	1.41	.58	1.0	6.0
7.	447	100	3.94	1.53	-.42	1.0	6.0
8.	446	101	3.96	1.47	-.42	1.0	6.0

5.2.6.2   *Domain factorability.*

The factorability of the eight item datafile was strongly supported by a KMO measure of sampling adequacy of .85, a significant Bartlett's Test of Sphericity ($p < 0.001$) and the Anti-Image matrix diagonal MSAs all above 0.82. The Inter-item Correlations ranged from .30 to .71.

5.2.6.3   *Monetary Domain: Principal Component Analysis.*

Initial PCA provided support for a unidimensional solution for this domain. The unrotated Component Matrix (see Table 5.41) showed a single component with strong to very strong loadings by all eight items, ranging from .62 to .84.

Table 5.41
Monetary Domain: Component Matrix

Item no.	Component 1
5.	.84
4.	.76
6.	.76
2.	.75
1.	.69
8.	.69
3.	.68
7.	.62

The scree plot presented in Figure 5.6 shows a single sharp change in direction at Component 2, strongly suggesting a single component. This being the case, there is no need for parallel analysis, component number deliberations, or rotation. The Total Variance Explained by the single component was 52.8%.
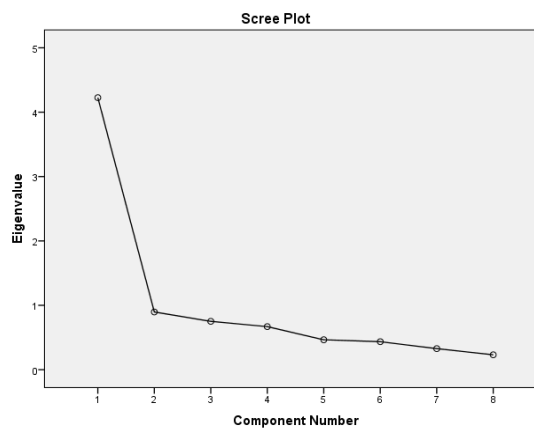
Figure 5.6. Scree plot: Monetary domain (SPSS v19 image)

5.2.6.4　Comparing PCA with PAF Monetary Domain analyses

The PAF-derived item loadings on the single factor (see Table 5.42) show figures identical in their descending order and similar in magnitude to those on the PCA Component Matrix (see Table 5.42). The close similarity of these two solutions supports the robust nature of the PCA unidimensional solution.

Table 5.42

Monetary Domain: PAF Coefficients Compared with PCA Loadings

Item No.	PAF Factor co-efficients	PCA loadings
5.	.84	.84
4.	.73	.76
6.	.72	.76
2.	.70	.75
1.	.64	.69
8.	.62	.68
3.	.62	.68
7.	.55	.62

5.2.6.5 *Summary and interpretation: Monetary Domain.*

Both PCA and PAF solutions included all eight Monetary Domain items,
arranged below in decreasing order of loading magnitude. The items relating to
direct cash incentives load most strongly. Monetary subsidies and incentives with
less universal applicability, such as accommodation assistance, load at lesser but
still medium strength. The scale is entitled ***Financial interests*** and comprises:

In choosing any job, my big priorities include:

5 ..... to receive allowances, tax breaks, and/or HECS pay outs.

4. ....to significantly increase my retirement funding.

6. ....negotiating a contract with cash bonus for staying the full term.

2. ...continuing professional development costs being met by the employer.

1. ....negotiating a generous pay and annual leave package.

8. ....very good pay for any after-hours on-call and call-outs.

3. ....being able to obtain a scholarship to help me further my post graduate
   studies.

7.....being provided with well subsidized accommodation

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5.2.7 Domain 7: PREFERRED WAYS of WORKING.

The Preferred Ways of Working (PWW) domain comprised 23 items all related to distinct choices of work type and their associated motivations, including in Indigenous, underserved, or other special need workplaces (see Table 5.43). Such work types are found at every level of remoteness and health agency, within and outside of Indigenous communities. Pilot testing and answer distributions indicated that most practitioners could adequately respond to all these items. Some items are reverse scored (R), to maintain consistency of scoring direction.

Table 5. 43
Preferred Ways of Working: Initial Items
_____

1. In considering a new job, I prefer one that teaches me to communicate well with people from another culture.

2. In considering a new job, I prefer one that raises my confidence in working with people of other cultures.

3. In considering a new job, I prefer one that introduces me to the stories and views of Aboriginal and Torres Strait Island people.

4. In considering a new job, I prefer one that helps me to learn to speak an Aboriginal or Torres Strait Islands language.

5. In considering a new job, I prefer one that requires me to both manage staff and provide clinical services.

6. In considering a new job, I prefer one that involves me helping to Close the Gap between Indigenous and non-Indigenous health status.

7. Given the choice, I will choose a job that helps me carry out research in areas of special clinical interest to me.

8. I am more inclined to stay in a job if I am not presented with complex clinical challenges often. (R)

9. I would quit a job where clients/patients regularly approach me out-of-hours about their needs. (R)

10. I would quit a job where most of my patients /clients have limited English (R).

11. I would quit a job where there is no backfill of my job when I take leave. (R)

12. I would quit a job where I quite often get called out by the job after hours. (R)

13. I believe that visiting (FIFO) service arrangements are overall, best for very remote communities. (R)

14. I believe that mixing social and clinical relationships should be avoided. (R)

15. I am committed to developing evidence based knowledge about those with very substantial health/medical needs.

16. I am committed to supporting public health programs even when they challenge individual freedoms.

17. Wherever I work, I feel the need to feel free to use my professional relationship networks to get things done for my clients /patients.

18. Wherever I work, I feel the need to feel free to deliver local community health education programs.

19. Wherever I work, I feel the need to be the leader of the health/medical team I work in.

20. Wherever I work, I feel the need to have clinical centres of excellence readily accessible for my patients/clients (R).

21. Wherever I work, I feel the need to be available all hours to provide help for any workplace emergency.

22. Wherever I work, I feel the need to feel welcomed to teach my area of expertise to staff, students and/or community residents.

23. Wherever I work, I feel the need to feel a real passion for doing my job.

_____

5.2.7.1   *PWW: Descriptive statistics.*

Descriptive statistics are presented in Table 5.44. Score values were all within the range 1 to 6, with a good spread across a wide range. The mean scores ranged from 2.34 (item 10) to 5.10 (item 23). Most item score distributions were not very skewed, except item numbers 6 (Close the Gap), 17 (use professional relationship) and 23 (passion for the job), all skewed towards "Very like me".

Table 5.44

Preferred Ways of Working: Descriptive Statistics

Item	*n* Valid	Missing	Mean	Std Devn	Skew	Min	Max
1.	457	90	4.70	1.00	-.77	1.00	6.00
2.	458	89	4.78	.98	-.84	1.00	6.00
3.	458	89	4.71	1.14	-.86	1.00	6.00
4.	457	90	3.88	1.40	-.15	1.00	6.00
5.	458	89	4.16	1.39	-.53	1.00	6.00
6.	456	91	4.73	1.12	-.98	1.00	6.00
7.	459	88	3.94	1.41	-.32	1.00	6.00
8.	457	90	2.62	1.28	.70	1.00	6.00
9.	459	88	2.98	1.25	.43	1.00	6.00
10.	454	93	2.34	1.11	.67	1.00	6.00
11.	453	94	3.21	1.41	.24	1.00	6.00
12.	445	102	3.05	1.38	.35	1.00	6.00
13.	448	99	2.89	1.55	.46	1.00	6.00
14.	457	90	3.35	1.43	.21	1.00	6.00
15.	452	95	4.58	1.14	-.75	1.00	6.00
16.	457	90	4.82	.97	-.98	1.00	6.00
17.	457	90	4.66	1.11	-1.06	1.00	6.00
18.	453	94	4.45	1.17	-.67	1.00	6.00
19.	452	95	3.55	1.39	-.04	1.00	6.00
20.	451	96	4.26	1.24	-.50	1.00	6.00
21.	453	94	3.48	1.47	-.07	1.00	6.00
22.	450	97	4.44	1.15	-.84	1.00	6.00
23.	440	107	5.10	.93	-1.16	1.00	6.00

5.2.7.2   Exploratory Factor Analysis.

Initial analyses confirmed the factorability of this dataset. There were numerous inter-item correlations above 0.3, the KMO measure of sampling adequacy was 0.84, and the Bartlett's Test of Sphericity was highly significant ($p < 0.001$). Six components recorded eigenvalues above 1.0. These explained 23.9%, 11.5%, 9.0%, 5.7%, 5.2%, and 4.6% of the total variance, for a cumulative total of 59.9% of the variance explained. Inspection of the scree plot (see Figure

5.7) showed a marked angle at the fourth component, suggesting the retention of a

maximum of three components could be most productive.
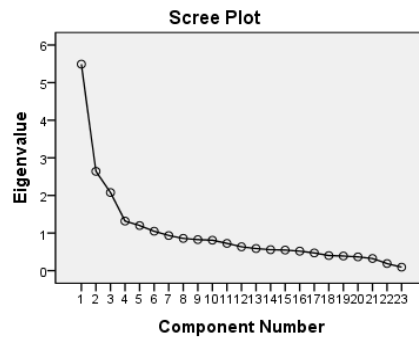
Figure 5.7. PWW domain: PCA scree plot (SPSS V19 image)

The unrotated Component Matrix showed five items loading below 0.4 on

Component 1, with seven items loading above 0.5 on the other five components.

This strongly favoured a multidimensional solution. Parallel analysis indicated

that up to four components could be retained (see Table 5.45). It was therefore

decided to retain four components for further investigation, contrary to the scree

plot indication.

Table 5.45
PWW: Parallel Analysis

(*Based on 23 items, 455 cases, 100 replications*)			
Comp't	PCA Eigenvalue	PA Eigenvalue	Decision
1	5.491	1.421	Accept
2	2.642	1.357	Accept
3	2.078	1.302	Accept
4.	1.317	1.259	Accept
5.	1.200	1.220	**Reject**

Rotation of the four-component solution, using Direct Oblimin, produced the

pattern matrix shown in Table 5.46. This showed four or more items strongly

loading on three of the four components with a relatively small number cross-

loading, given the wide array and diversity of items. Items 9 and 12 cross-loaded

on Components 2 and 4, with large differences; items 10 and 20 cross-loaded with small differences. Item 13 loaded weakly and only on Component 4. These cross-loadings and the weak loadings of all but two items rendered Component 4 unviable, since in the final descriptive stage only an insufficient two useable items would be left loading above .40.

Table 5.46
Domain PWW: Pattern Matrix Four Components, 23 items

Item	Component			
	1	2	3	4
3.	.92			
2.	.88			
1.	.88			
4.	.78			
6.	.74			
9.		.71		.34
12.		.70		.33
21.		.69		
14.		.55		
22.			.68	
19.		.33	.66	
15.			.64	
17.			.63	
23.			.58	
18.			.56	
7.			.56	
16.			.47	
5.			.36	
8.				.62
11.				.61
10.	.33	.33		.47
20.			-.37	.40
13.				.34

Loadings <.30 not shown

5.2.7.3   *Refining the solution.*

The next iteration involved extracting three components from the 23-item dataset, then rotating the solution using Direct Oblimin. The subsequent pattern matrix (see Table 5.47) showed nine items loading on Component 1 at or above

.40, six items on Component 2 loading above 0.40 and five items on Component 3

loading at or above (-) .73.

Table 5.47
Domain PWW Pattern Matrix: Three Components, 23 Items

Item	Component 1	Component 2	Component 3
19.	-.73		
22.	.69		
17.	.63		
18.	.61		
15.	.58		
23.	.54		
7.	.53		
20.	-.46		
16.	.43		
5.	.40		
9.		.82	
12.		.79	
11.		.60	
10.		.57	-.34
14.		.49	
21.	.31	.43	
8.		.31	
13.			
3.			-.89
2.			-.86
1.			-.86
4.			-.75
6.			-.73

Loadings < .30 not shown

Items 13 and 8 failed to load above .40 on any component. Item 21 cross-

loaded weakly on both Components 1 and 2. Item 16 had very low communality

(.21) and loaded only on Component 1 above .40, and weakly so. With these four

items then deleted, the 19-item dataset was again analysed using PCA and rotated

with Direct Oblimin to produce the pattern matrix in Table 5.48. This matrix

shows five or more items loading above .50 on all three components. Item 20 was

deleted due to its low loading on Component 3 (-.40) along with its low

communality (.23).

Table 5.48
Domain PWW: Pattern Matrix Three Factors, 19 Items

	Component		
Item	1	2	3
3.	.91		
1.	.89		
2	.89		
4	.75		
6	.74		
9.		.81	
12.		.78	
11.		.64	
10.	-.33	.59	
14.		.52	
19.			.78
22.			.71
17.			.65
18.			.61
15.			.55
7.			.54
23.			.53
14.			.42
20.			.40

The resultant 18-item dataset was analysed using PCA and rotated using

Direct Oblimin. The subsequent Pattern and Structure coefficients are listed in

Table 5.49. All the communalities listed were above .3 except item 14 (0.27),

which was retained on the basis of its .52 loading on the Pattern Matrix

Component 2.

Table 5.49
Domain PWW: Pattern and Structure Coefficients Three Factors, 18 Items

Item	Pattern Matrix Component			Structure Matrix Component			Commun-alities
	1	2	3	1	2	3	
3	**.91**	.07	-.02	.91	.19	.29	.84
1	**.89**	-.01	.02	.90	.11	.31	.80
2	**.89**	-.01	.04	.90	.11	.33	.81
4	**.75**	.05	.07	.78	.15	.32	.62
6	**.74**	.01	.10	.78	.11	.34	.61
9	.07	**.81**	-.01	.18	.82	.06	.68
12	.01	**.79**	-.01	.11	.79	.03	.62
11	-.10	**.63**	.01	-.01	.62	.01	.39
10	.32	**.59**	-.15	.35	.63	-.02	.49
14	-.03	**.52**	.09	.07	.52	.11	.28
19	.26	.12	**.79**	.01	.13	.71	.57
22	-.05	.04	**.71**	.19	.07	.69	.48
17	-.05	.03	**.63**	.16	.05	.62	.38
18	.22	-.02	**.60**	.42	.04	.67	.50
15	.17	-.15	**.56**	.33	-.10	.61	.41
7	.11	-.11	**.55**	.27	-.07	.58	.36
23	.17	-.07	**.53**	.34	-.02	.58	.37
5	.17	.19	**.43**	.33	.23	.49	.31

All PCA Component item loadings above .40 shown in **bold.**

Components 1, 2, and 3 explained 28.6%, 13.5% and 10.7 % of the variance respectively, to make a cumulative 52.9% total variance explained. Inter-component correlations were: for Components 1 and 2, 0.13; for Components 2 and 3, 0.05; and for Components 1 and 3, .33.

On the basis of these data, the three-component, 18-item solution was accepted as the Preferred Ways of Working subscale set for further development.

5.2.7.4   *Principal Axis Factoring.*

The PCA 18-item dataset was subjected to PAF to test the resilience of the three-component solution across extraction techniques; see Table 5.50. This solution is remarkably similar in number and pattern of loadings on the three

components, for both the PAF and PCA matrices, so supporting the PCA solution

as being resilient across component/factor analysis methods.

Table 5.50

Domain PWW: PAF Pattern and Structure Matrices Three Components, 18 Items

	PAF F 1	PCA C1	PAF F2		PAF F3	PCA C3
3	.91	.91				
1	.88	.89				
2	.89	.89				
4	.67	.75				
6	.66	.74				
9			.80	.81		
12			.73	.79		
11			.49	.63		
10			.50	.59		
14			.38	.52		
19					.72	.79
22					.63	.71
17					.53	.63
18					.57	.60
15					.50	.56
7					.48	.55
23					.46	.53
5					.38	.43

Loadings < .30 not shown

5.2.7.5 Preferred ways of working: Subscale interpretation and description.

The five items loading on **Component 1** share the motivational theme of

desire to develop personal intercultural skills and interests, particularly relating to

Aboriginal and Torres Strait Island people. Accordingly, the subscale was entitled

Intercultural Interests, comprising the following five items, none being reverse

scored and all listed in descending order of loading magnitude:

3.   *In considering a new job, I prefer one that introduces me to the stories*

   and views of Aboriginal and Torres Strait Island people.

1.   *In considering a new job, I prefer one that teaches me to communicate*

   well with people from another culture.

2. *In considering a new job, I prefer one that raises my confidence in working with people of other cultures.*

4. *In considering a new job, I prefer one that helps me to learn to speak an Aboriginal or Torres Strait Islands language.*

6. *In considering a new job, I prefer one that involves me helping to Close the Gap between Indigenous and non-Indigenous health status.*

The five items loading on **Component 2** share workplace structure elements that relate to social boundary control issues and other social and service demands. The subscale was labelled ***Personal Demand Preferences.*** All the items are reverse scored: a high total score conveys that to be de-motivated by such workplace demands would be "very unlike" the respondent. The items are listed in descending order of loading magnitude:

9. *I would quit a job where clients/patients regularly approach me out-of-hours about their needs. (R)*

12. *I would quit a job where I quite often get called out by the job after hours. (R)*

11. *I would quit a job where there is no backfill of my job when I take leave. (R)*

10. *I would quit a job where most of my patients /clients have limited English (R).*

14. *I believe that mixing social and clinical relationships should be avoided. (R)*

The eight items loading on **Component 3** share motivational influence associated with taking a holistic, preventative, and assertive approach to

community based health work. This would involve out-reach with teaching, researching new health knowledge; educating the community about health matters; fostering team work, and networking. Most items relate specifically to primary health care; none were reverse scored. The subscale was entitled ***Primary Health Care Orientation.*** The eight items follow, in descending order of loading magnitude:

19. *Wherever I work, I feel the need to be the leader of the health/medical team I work in.*

22. *Wherever I work, I feel the need to feel welcomed to teach my area of expertise to staff, students and/or community residents.*

17. *Wherever I work, I feel the need to feel free to use my professional relationship networks to get things done for my clients /patients.*

18. *Wherever I work, I feel the need to feel free to deliver local community health education programs.*

15. *I am committed to developing evidence based knowledge about those with very substantial health/medical needs.*

7. *Given the choice, I will choose a job that helps me carry out research in areas of special clinical interest to me.*

23. *Wherever I work, I feel the need to feel a real passion for doing my job.*

5. *In considering a new job, I prefer one that requires me to both manage staff and provide clinical services.*

5.2.8 Domain 8: PROFESSIONAL ADVANCEMENT.

The Professional Advancement (PA) domain included eight items listed in Table 5.50. They shared motivational elements around career and associated

competence development. Item 4, concerning disinclination towards complex clinical work, was reverse scored (R) to complement the domain's prevailing theme. This item had been trialled in the Preferred Ways of Working domain analysis but was removed early in the PCA. It appeared to share affinity with both domains.

TABLE 5.51
PROFESSIONAL ADVANCEMENT: INITIAL ITEMS

1. Usually I enjoy taking on a large clinical workload.

2. Given the choice, I will choose a job that helps me build my skills to deal with complex presentations in my patients/clients.

3. Given the choice, I will choose a job that helps me be recognized in my community as an expert in my field.

4. I am more inclined to stay in a job if I am not presented with complex clinical challenges often (R).

5. I believe that in my stage in life I need to be doing something very different from my past patterns in my career.

6. In choosing any job, my big priorities include the career opportunities the job offers.

7. In choosing any job, my big priorities include developing my private practice.

8. Wherever I work, I feel the need to gain on the job experience to significantly advance my clinical skills.

5.2.8.1 *Professional Advancement: Descriptive statistics.*

The descriptive statistics and frequencies for the Professional Advancement domain items are listed in Table 5.52. Item 7 had fewer valid cases because it was not applicable to many respondents and so was left blank more often, as instructed. All eight items were rated from 1 (Very unlike me) to 6 (Very like me) on a Likert scale. The mean scores for each item lay between 2.67 (Item 7) and 5.03 (Item 2), with standard deviations ranging 0.95 (Item 2) to 1.58 (Item 5). Item 2 (build clinical skills) was skewed towards the "very like me" extreme;

Items 1 (enjoy large clinical load) and 5 (need to do something different in career)

were the least skewed in distribution.

Table 5.52
Professional Advancement: Descriptive Statistics

Item	n Valid	Miss- ing	Mean	Std. Dev'n	Skew	Min	Max
1.	457	90	4.03	1.26	-.36	1.0	6.0
2.	460	87	5.03	.946	-1.10	1.0	6.0
3.	459	88	4.37	1.25	-.65	1.0	6.0
4.	457	90	4.38	1.28	-.70	1.0	6.0
5.	453	94	3.10	1.47	.37	1.0	6.0
6.	456	91	4.25	1.27	-.54	1.0	6.0
7.	435	112	2.67	1.57	.70	1.0	6.0
8.	456	91	4.63	1.17	-.99	1.0	6.0

5.2.8.2   *Exploratory Factor Analysis.*

PCA showed the eight-item dataset to be factorable, with a KMO of .62 and a

significant Bartlett's Test of Sphericity ($p < 0.001$), with six of the eight items

inter-correlating above .3 and two items (5, 7) not inter-correlating above .3. The

cumulative total variance explained provided by the first three components was

58.7 %. The scree plot (see Figure 5.8) suggested a two-component solution as

possibly optimal, the largest angle being at Component 3.
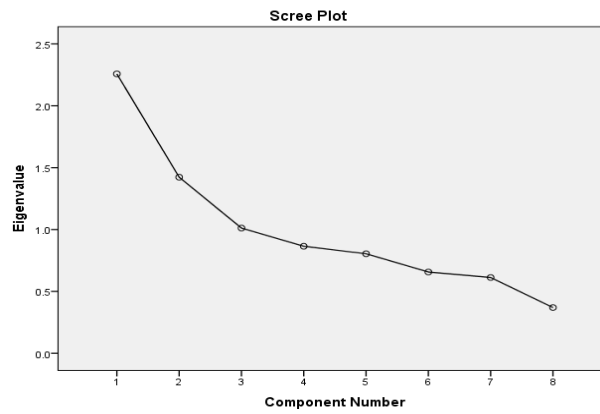
Figure 5.8 Professional Advancement: Scree Plot (SPSS v19 image)

The urotated Component Matrix (see Table 5.53) suggested a multidimensional solution, with only four of eight variables recording dominant loadings on the first component extracted.

Table 5.53
Professional Advancement: Unrotated Component Matrix

Item	Component		
	1	2	3
2.	.77		
3.	.67		
1.	.62	-.38	
8.	.59		
6.	.44	.64	
4.	-.40	.62	
7.	.35	.48	.33
5.		.31	.83

Loadings < .30 not shown

Parallel Analysis was conducted using eight variables, 455 cases and 100 replications (see Table 5.54). This supported earlier data: the two-component solution was accepted as the most probably optimal. The dataset for refinement therefore included eight items from which two components would be extracted.

Table 5.54
Professional Advancement: Parallel Analysis Summary

Component	PCA Eigenvalue	Parallel Analysis Eigenvalue	Decision
1	2.258	1.2026	Accept
2	1.423	1.1268	Accept
3	1.012	1.0685	Reject

5.2.8.3 Refining the solution.

The two-component solution was rotated using Direct Oblimin. The Pattern

Matrix (see Table 5.55) produced strong loadings by four items (.59 to .76) on

Component 1, with three items loading above .6 on Component 2. Item 5 did not

load above .3 on either Component.

Table 5.55
*Professional Advancement: Pattern matrix: Two Components, Rotated, eight
items*

Item no.	Component	
	1	2
6.	.76	
8.	.60	
3.	.60	-.31
7.	.59	
4.		-.73
2.	.38	-.71
1.		-.69
5.		

Loadings <.30 not shown

In the next iteration, Item 5 was deleted to produce the two-component,

seven-item Pattern Matrix in Table 5.56. This shows three items loading above .7

on Component 1 and four items loading on Component 2 above .5. This solution

was provisionally accepted, noting that in the later Description stage, Item 3

would be allocated to Component 2, based on its much larger loading on

Component 2. The Pattern Matrix coefficients match those of the Structure Matrix

closely, reflecting the low inter-component correlation (.16). The cumulative total
variance explained by the two components was 52.1% and the commonalities
range from .41 to .67, giving no need to consider any further trial deletions.

Table 5.56
Professional Advancement: Pattern and Structure Coefficients

Item	Pattern coefficients		Structure coefficients		Communality
	Component 1	Component 2	Component 1	Component 2	
4.	**.75**	-.28	.71	-.16	.58
2	**.74**	.25	.78	.37	.67
1	**.72**	.07	.73	.18	.54
6.	-.18	**.81**	-.05	.78	.64
7.	-.09	**.58**	.00	.57	.33
8	.23	**.56**	.32	.60	.41
3.	.34	**.56**	.42	.61	.48

*Note: all Pattern Matrix loadings above .40 listed in **Bold***

5.2.8.4   *Comparing PCA and PAF method results.*

The above seven-item solution was analysed using PAF to assess the
robustness of the PCA result. The matrix shown in Table 5.57 shows a two-factor
solution with three loadings at or above .5 on PAF Factor 1 and four loadings
above .3 on PAF Factor 2. While this match was not as close as some of those
above, with reduced PAF loadings compared with the PCA loadings being the
main difference, it supports the PCA solution as adequately resilient across
analysis methods.

Table 5.57

Professional Advancement: PCA/PAF Pattern Matrix Comparison

Item	Pattern			
	PCA	PAF	PCA	PAF
	C1	F1	C2	F2
2.	.74	.77		
1.	.72	.53		
4.	.75	.50		
6.			.81	.83
3.			.56	.44
8.			.56	.37
7.			.58	.33

5.2.8.5 *Professional Advancement: Subscale Description and Interpretation*

Component 1 of the preferred solution comprised the following three items, in descending order of loading in the PCA pattern matrix. They share themes around clinical skills and clinical confidence; there is one reverse scored item (4). The scale is entitled ***Clinical Competence:***

4. *I am more inclined to stay in a job if I am not presented with complex clinical challenges often (R).*

2. *Given the choice, I will choose a job that helps me build my skills to deal with complex presentations in my patients/clients.*

1. *Usually I enjoy taking on a large clinical workload.*

Component 2 comprised four items, none of which are reverse scored, and all relating to ***Career Management***. The items are listed in descending order of loading magnitude:

6. *In choosing any job, my big priorities include the career opportunities the job offers.*

7. *In choosing any job, my big priorities include developing my private practice.*

8. *Wherever I work, I feel the need to gain on-the-job experience to significantly advance my clinical skills.*

3. *Given the choice, I will choose a job that helps me be recognized in my community as an expert in my field.*

5.2.9 Domain 9: RELATIONSHIPS.

This Relationships domain included items that shared motivational considerations around relationships with "significant others". The four items are listed in Table 5.58. As with all the domains, each item was associated with a domain during the item construction stage (See Appendix B: Table B.1), on the basis of theory, empirical findings, and *a priori* reasoning, concerning the item's possible motivating contributions to job choice. None of the Relationship items were reverse scored.

Table 5.58
Relationship Domain: initial Items

1.	I am committed to making joint decisions with those important to me about any career move.
2.	I am committed to having a job within no more than a few hours' drive of my family networks.
3.	In choosing any job, my big priorities include the needs and wants of those special to me.
4.	In choosing any job, my big priorities include maintaining my out-of-work close relationship network with regular face-to-face contact.

5.2.9.1   *Descriptive statistics.*

The descriptive statistics for this domain (see Table 5.59) show the number of valid cases for each item lay within the range 452 – 456, being very close to all

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previous domains. The four items were each rated from Very unlike me (1) to Very like me (6) on a Likert scale; all scores lay within this range. The mean scores for each item lay between 2.78 (Item 2) and 4.47 (Item 1), with the standard deviation ranging from 1.22 (Item 3) to 1.61 (Item 2). Some skewness existed towards the "Very like me" extreme in Items 1 (committed to joint decisions) and 3 (considering needs, wants of those special). Since no items were reverse scored, a high score for all items conveyed strong influence by relationship matters in job choice.

Table 5.59
Relationship Domain: Descriptive Statistics

Item	n		Mean	Median	Std Dev'n	Variance	Skew	Min	Max
	Valid	Missing							
1.	455	92	4.47	5.00	1.37	1.87	-.95	1.0	6.0
2.	456	91	2.78	2.00	1.61	2.58	.56	1.0	6.0
3	453	94	4.44	5.00	1.22	1.50	-.78	1.0	6.0
4	452	95	3.69	4.00	1.39	1.93	-.24	1.0	6.0

5.2.9.2 *Exploratory Factor Analysis.*

Preliminary (PCA showed the dataset to be factorable, with KMO of .62, a significant Bartlett's Test of Sphericity ($p < 0.001$), and all items correlating with at least one other above .3. The total variance explained by the first component was 48.4%. The scree plot (see Figure 5.9) suggested a unidimensional solution as most appropriate, with only one eigenvalue above 1.0.
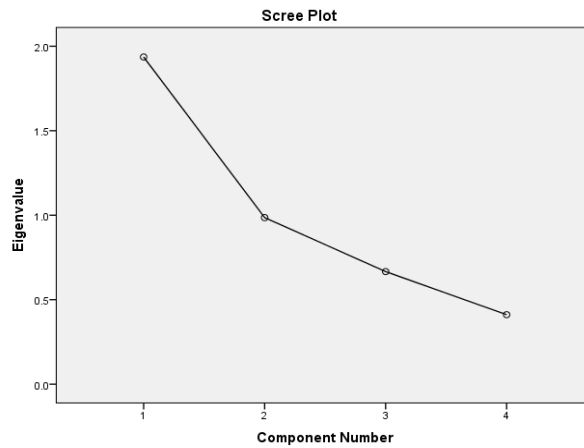
Figure 5.9. Relationships domain: PCA scree plot (SPSS v19 image)

Parallel Analysis results, shown in Table 5.60, also supported a single component solution as optimal.

Table 5.60
Relationship Domain: Parallel Analysis

Component	PCA Eigenvalue	Parallel Analysis Eigenvalue	Decision
1	1.936	1.1010	Accept
2	.986	1.0291	Reject
3	.411	.9703	Reject

The unrotated Component Matrix (see Table 5.61) shows a single component loaded by all four items at or above .49, strongly indicating a unidimensional solution and consistent with all the above indications.

Table 5.61
Relationships: Unrotated Matrix

Item	Component 1
3	.82
1	.76
2	.67
4	.49

5.2.9.3   *Refining the solution.*

To refine the solution, Item 4 was removed due to its low communality (.24) and weak inter-item correlations (largest being .30). PCA of the remaining three items listed in Table 5.62 showed a single, three-item component solution explaining 60.3% of the total variance.

Table 5.62
Relationships: PCA Rotated Component Matrix

Item	Component 1
3	.86
1	.82
2	.63

5.2.9.4   *Method comparison: PCA compared with PAF.*

The three-item dataset solution using PAF outlined in Table 5.63 was very consistent with that obtained using PCA, in terms of magnitude and order of loadings. This supported the robustness of the PCA solution across extraction techniques.

Table 5.63
Relationships: Three item PCA/PAF Comparison Matrix,

Item	PAF F1	PCA C1
3	.88	.86
1	.66	.82
2	.40	.63

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5.2.9.5   Interpretation: Relationships subscale.

This subscale derived from the Relationships Domain comprised three relationship centred items, so was entitled ***Relationship Imperatives.*** These items follow, in descending order of loading weight:

3. *In choosing any job, my big priorities include the needs and wants of those special to me.*

1. *I am committed to making joint decisions with those important to me about any career move.*

2. *I am committed to having a job within no more than a few hours' drive of my family networks.*

CHAPTER 6:   RESULTS 2
SUBSCALE RELIABLITIES AND VALIDITIES

6.1   Appraising the subscales' internal reliabilities.

The descriptive statistics and internal reliability estimates for the 17 subscales produced in Chapter 5 are presented below, to assist with deciding which scales will be suitable to retain for further development and use in addressing the research questions. The mean inter-item correlation and Cronbach's α were used together to assess internal reliability. Pallant (2011) noted that adequately reliable scales of fewer than 10 items can fail to produce a Cronbach's α above .7, the usually cited minimum for adequate internal reliability. Pallant (2011) recommended the use of a scale's mean inter-items correlation as a useful adjunct estimate of internal reliability for such scales. The subscales below are classified into three levels of internal reliability, namely Medium to Strong (see Table 6.1), Low to Medium (see Table 6.2), and Not Adequate (see Table 6.3). The Cronbach's α and inter-item correlation limits used were based on Pallant's (2011) recommendations.

Various tests of normality were used on each scale, including those of Kolmogorov-Smirnov and Shapiro-Wilk. All scales produced significant findings in these two tests, suggesting that none of them were normally distributed. However, given the sample numbers involved (≥ 408), these findings alone are not conclusive with regard to non-normality (Pallant, 2011).

6.1.1 Subscales of medium to strong internal reliability.

Seven subscales of medium to strong reliability, with a Cronbach's $\alpha \geq .70$ and a mean inter-item correlation $\geq .30$, are shown in Table 6.1. The subscales were produced from datafiles comprising 408 to 454 health practitioners (74.6-83.0% of total sample). All scale scores lay within their expected range. Their means and 5% trimmed means were very similar, reflecting minimal distortion by

outliers, the relatively small number of which are evident in their histograms at

Appendix D 1-3.

Table 6.1

Subscales of Medium to Strong Internal Reliability

Subscale	*n* (% of total)	Total Score Range: Actual/ Possible	Mean Scale Score	5% Trim-med mean	Med-ian	Stan-dard Dev'n	Skew / Kurt-osis	Mean Inter-Item Cor'n	Cron-bach α
Intercultural Interests	454 (83.0)	5.0-30.0 / 5.0-30.0	22.79	23.05	23.0	4.85	-.63 / .62	.68	.91
Compassion	437 (79.9)	8.0-48.0 / 8.0-48.0	38.99	39.35	39.0	6.02	-.98/ 2.31	.46	.87
Financial Incentives	408 (74.6)	8.0-48.0 / 8.0-48.0	28.58	28.57	28.0	8.27	.00/ -.31	.46	.87
Primary Health Care Orientation Preferences	417 (76.2)	8.0-40.0 / 8.0-48.0	34.89	35.06	35.0	6.08	-.48/ .73	.30	.77
Challenge Seeker	455 (83.2)	4.0-24.0 / 4.0-24.0	16.16	16.22	16.0	3.45	-.32/ .17	.44	.75
Professional Self Containment	442 (80.8)	6.0-34.0 / 6.0-36.0	17.54	17.42	18.0	4.97	.33/ .38	.31	.73
Personal Demand Preferences	433 (79.2)	6.0-30.0 / 5.0-30.0	20.09	20.19	20.0	4.45	.31/ -.01	.34	.71

Standard deviations for each scale reflected levels of variance that could

provide useful discrimination between respondents on each scale. Skewing and

kurtosis figures identified at least two subscales as not normally distributed, with

the following five scales' distributions appearing to approximate the normal.

These indications were all consistent with the scales' histograms in Appendix D:

Financial interests;

Challenge Seeker;

Personal Demand Preferences;

PHC Orientation.

Two subscale score distributions were clearly not normal:

Compassion (strongly skewed towards "Very like me"); and

Intercultural interests (moderately skewed towards "Like me").

6.1.2 Subscales of low to medium internal reliability.

Seven subscales with low to medium internal reliability (Cronbach's $\alpha \geq .65$ and mean inter-item correlations $\geq .29$; or Cronbach's $\alpha \geq .60$ and mean inter-item correlations $\geq .35$) are listed in Table 6.2, along with their descriptive statistics. They were derived from samples ranging between 429 - 453 health practitioners. Their small differences in scale means compared with their 5% trimmed means indicated minimal distorting by outliers on their overall distributions (Pallant, 2011). All subscales' total score ranges lay within expected limits. The standard deviations reflected levels of variance that would enable these scales to discriminate between respondents who differed on the underlying constructs. With the exception of Lifestyle's high kurtosis figure, skewing and kurtosis figures reflected distributions approximating normality, as evidenced by their histograms.

Table 6.2

Descriptive Statistics: Subscales of Adequate Reliability

Subscale	n	Score total Range: Actual/Possible	Mean Total Scale Score	5% Trim-med Mean	Med-ian	Stand-ard Dev'n	Skew/Kurt-osis	Mean Inter-item corr'n	Cron-bach's α
Living Location	453	6.0 – 24.0 / 4.0 - 24.0	18.38	18.56	19.0	3.72	-.67 / .07	.35	.69
Lifestyle	447	5.0 – 18.0 / 3.0- 18.0	11.96	12.00	12.0	1.71	-.25 / 2.18	.41	.68
Avoidance Needs	431	4.0 - 24.0 / 4.0- 24.0	15.01	15.04	15.0	3.92	-.11 / -10	.31	.65
Belonging Needs	444	9.0- 30.0 / 5.0- 30.0	24.00	24.11	24.0	3.34	-.48 / .70	.29	.65
Relationship Imperatives	448	3.0- 18.0 / 3.0- 18.0	11.72	11.82	12.0	3.23	-.42 / .10	.40	.64
Spiritual beliefs	429	3.0- 18.0 / 3.0- 18.0	9.70	10.04	10.0	3.53	.12 / -.54	.37	.64
Clinical Competence	452	3.0 - 18.0 / 3.0- 18.0	13.45	13.52	14.0	2.63	-.41 / .19	.35	.61

The above descriptive data, along with the subscales' histograms in

Appendix D, indicate that the following three scales' total score distributions were

approximately normal:

Relationship Imperatives;

Avoidance needs;

Spiritual beliefs.

Based on relevant data and their histograms, the following four subscales'
total score distributions were not normally distributed. Except for Lifestyle, with
its central peaking, they were all skewed to the "Very like me" end of the rating
scale:

Clinical Competence;

Living Location Preferences;

Belonging Needs;

Lifestyle.

All these subscales were potentially relevant to at least some of the research
questions and were retained for further exploration.

6.1.3 Subscales of below adequate internal reliability.

The internal reliability measures for the three subscales listed in Table 6.3
were unacceptably low (mean inter-item correlations $< .30$ and Cronbach's $\alpha <$
$.60$) using Pallant's (2011) and DeVellis' (2012) guidance. Consequently, these
subscales were excluded from further analysis at this stage.

Table 6.3
Descriptive Statistics: Subscales of Inadequate Reliability

Subscale	n	Total Score Range: Actual/ Possible	Mean of Total Scale Score	5% Trim-med mean	Median mean score	Stand-ard Dev'n	Skew/ Kurt-osis	Mean Inter-Item Corr'n	Cronb-ach A
Variety Seeker	458	4.0-24.0 / 4.0-24.0	15.22	15.3	15.0	3.71	-.22/ -.16	.27	.59
Career Building	430	6.0-24.0 / 4.0-24.0	15.96	16.0	16.0	3.45	-.06/ -.10	.24	.55
Managerial Self Confidence	450	7.0-24.0 / 4.0-24.0	16.29	16.3	16.0	3.22	-.12/ -.17	.23	.54

6.2   The 14 retained subscales: Validity appraisal.

The method used in commencing the validating of the subscales was outlined

in Chapter 4: Method: Section 4.2.8. The Content, Criterion and Construct

validities of the subscales were chosen for main focus, as recommended by

DeVellis (2003) and Pallant (2010).

6.2.1 Content validity: How well do each subscale's items reflect the conceptual definition of its underlying construct?

The methods used to select the 101 HPMS motivation items were

described in Chapter 4. Method: Section 4.2.3 "Compiling the HPMS item pool".

In pursuit of optimal item content, relevance concerning health practitioner

motivations, and therefore content validity, Pallant's (2010) recommendations

were followed. Over 50 experts in various fields of the health services industry

were consulted in constructing the HPMS item pool. The 17 subscales used 83 of

the initial 101 motivation items, with each used only once. In conceptualizing the

underlying construct of each subscale, the thematic and literal contents of its

constituent items provided the sole guide. Hence the subscales' *content* validities

are expected to be at least adequate.

6.2.2 Criterion validity: How well do the subscales predict what they are intended to predict, measured by a known criterion?

Each subscale was intended to predict a key variable of practitioner work

behaviour. The predictive relationships between the subscales and specified target

variables of interest are evident in the answering of Research Questions 3 to 5

(Chapter 8). The capacities of the subscales to generate significant likelihood

estimates of a practitioner having had nil, brief or long-term experience in the

remote and very remote workplace were explored, including having over three

years of very remote Indigenous community experience. Indications concerning

such criterion validities are therefore found in Chapters 7 and 8. A body of

evidence will be developed over time concerning the subscales' broader predictive validities.

6.2.3 Construct Validity: How closely does each subscale measure what it is purported to measure?

As described in Method, the appraisal of the subscales' construct validities initially involved appraising whether each one measured a facet of the intended underlying construct, HP work motivation. To do this, the extent to which each subscale correlated with three established variables that on *a priori* grounds were expected to reflect work motivation were calculated for the HPMS sample. Descriptive statistics for these- three variables of interest are shown in Table 6.4.

Table 6.4
Variables of Interest concerning Subscale Construct Validities:
Descriptive Statistics from HPMS sample

Variable of Interest	*n* (% of total HPMS sample)	Score Range: Possible/ Actual	Mean	5% trim-med mean	Median	Stand-ard devia-tion	Skew-ness	Kurt-osis	Cron-bach's A
Utrecht Engag't Scale	491 (89.8)	0 – 63 / 9 - 63	51.37	52.31	54.0	9.56	-1.66	3.37	.92
Person-Job Fit	497 (90.9)	0 - 24 / 4 - 24	19.15	19.32	20.0	3.19	-.97	2.21	.76
Job satisfaction	507 (92.7)	0 - 7 / 1 - 7	5.22	5.31	5.0	1.33	1.18	1.08	-

As shown in Table 6.4, sample numbers were adequate; all scores lay within their expected limits; all total score distributions were skewed towards the high total score, representing high ratings for each variable, and were moderately peaked. The relatively small number of outliers did not influence the means substantially, suggesting they had little distorting impact on the distributions. The internal reliability for the Engagement and Person-Job Fit scales as measured by

the Cronbach's α were satisfactory. The Satisfaction variable involved only the single item rating of work satisfaction.

Accounting for the lack of normal distributions, the non-parametric Spearman's ρ correlation coefficient was used to assess the relationships between each of the three scale variables, shown in Table 6.5. The inter-correlations between the three variables were all significant ($p< .001$), ranging between .43 and .55. These figures indicate that Engagement, Job Fit and Satisfaction share elements in common concerning attitudes and experiences of workers. They all measure in the same direction (high score meaning more, low score meaning less, of the variable), and do not duplicate in construct or content excessively, as very high correlations would have suggested.

Table 6.5
Three Variables of Interest: Spearman's Rho Inter-correlations

Variable of Interest		Satisfaction with present job	Utrecht Engag't	Person–job Fit.
Satisfaction with present job	Correlation Coefficient	1.00	.51**	.55**
	n	507	491	497
Utrecht Engagement scale	Correlation Coefficient		1.00	.43**
	n			482
Person-Job Fit	Correlation Coefficient	.		1.00

** Correlation is significant at the 0.01 level (2-tailed).

The nature of the relationships between each of the 14 subscales and the three variables of interest was established using the non-parametric Spearman's ρ. Sample numbers ranged between 397 and 507. The 10 subscales which produced

significant ($p \leq .05$) correlations with at least one variable of interest are listed in

Table 6.6.

Table 6.6

Validity Appraisal: Subscales with significant Spearman's rho correlations with three work related variables of interest

Subscale	Job Satisfaction All n>396	Utrecht Work Engagement Scale All n>396	Person-job Fit All n>396
	rho	**rho**	**rho**
PHC Orientation	.10*	.35**	.18**
Compassion	.17**	.33**	.16**
Clinical Competence	.13*	.30**	.16**
Challenge Seeking	.12*	.22**	.11
Intercultural Interests	.10*	.28**	.10*
Belonging Needs	.08	.25**	.15*
Personal Demand Preferences	.14*	.24**	.09
Living Location Preferences	.11*	.21**	.06
Avoidance Needs	.12*	.11*	.06
Clinical Self Containment	.14**	.10*	.01

* Correlation is significant at p ≤ 0.05 (2-tailed);   ** Correlation is significant at p ≤0.01 (2-tailed).

The following five subscales correlated significantly (p< .05; n>396) with all three variables of interest:

PHC Orientation;

Compassion;

Clinical Competence seeking;

Intercultural Interest;

Challenge seeking.

Three of the above subscales correlate at over .3 with the Utrecht Engagement scale, while none correlated above .17 with Job Satisfaction or .18 with Job Fit. These correlations suggest that all five subscales shared facets of underlying construct with the three variables of interest in small to moderate degree, and most strongly with Work Engagement.

The following five subscales are shown in Table 6.6 to significantly correlate ($p<$ .05; n>396) with two of the three variables of interest, with all again involving Work Engagement:

Belonging Needs;
Personal Demand Preferences;
Living Location Preferences;
Avoidance Needs;
Clinical Self-Containment.

Four of the five subscales also correlated significantly with Job Satisfaction, while only one, *Belonging Needs*, correlated significantly but weakly with Workplace Fit (.15; $p<$.05; n>396).

The four remaining subscales did not correlate significantly with any of the three variables of interest:

Financial incentives;
Lifestyle preferences;
Relationship imperatives;
Spiritual beliefs.

Financial Interests, Lifestyle preferences and *Relationship Imperatives* are all essentially "extrinsic" motivations, being very influenced by factors external to the practitioner, some job related, some not. Yet it is very likely that they can all play significant motivating roles in choice of work and workplace, despite their lack of correlation with the three person-work variables. These three variables all tap intrinsic (internal experience driven) rewards, raising the possibility that they were not suitable variables of interest to use in appraising the three more extrinsic motivation subscales' construct validities. However *Spiritual Beliefs* taps intrinsic rewards, but also showed little relationship with the three variables of interest, suggesting that the lack of significant correlation with these subscales is not simply about the intrinsic/extrinsic dichotomy. These questions are addressed in more detail in Chapter 9: Discussion. Other modes for assessing *Spiritual Beliefs'* criterion and construct validities are canvassed in Chapter 7 and Chapter 9: Discussion.

The correlations between 10 of the 14 retained subscales and the three variables of interest provide evidence that their underlying constructs all relate to work motivation. It is especially notable that the Utrecht Work Engagement Scale content, which is indisputably sensitive to work motivation, is also the most strongly related of the three variables to the 10 of the 14 subscales.

6.2.4 Subscales and reported motivations for Very Remote Indigenous work.

Neither the 17 nor the 14 subscale set was purported to be all-inclusive of the myriad of possible health practitioner motivations. To assess their degrees of inclusiveness with regard to HPs with very remote Indigenous work experience, they were compared with the response to the open question (HPMS Q 0021): "Please record… your main motivation(s) for seeking Very Remote work

before your first such work experience". This question was asked well before the 101 motivation items commenced in the HPMS, so was not prone to suggestion or response set by them. Of the 313 useable responses received, 294 (94.0 %) reported motivations that were closely aligned with at least one subscale of the 17-subscale set. Similarly, 291 (93.0%) responses were closely aligned with at least one subscale in the 14-subscale set. The majority of those responses that fitted the 17, but not the 14, subscale set aligned with two of those subscales not retained due to poor reliability, *Variety seeker* and *Career management*. None of them closely aligned with the third suspended subscale, *Managerial self-confidence*, which related to preferences around being central to the service and being delegated to manage at some distance from senior management. The rest of the spontaneous motivation responses that did not fit readily into any of the 14 subscales were of the non-specific and somewhat superficial themes, "It was part of my job" and "For experience".

These findings support the 14-subscale set as adequately inclusive and valid to further pursue the goals of this study with regard to the very remote Indigenous workplace.

6.3   The retained subscale meanings.

Table 6.8 provides a summary of the motivational implications indicated by a high and low score on each of the 14 retained subscales (in alphabetical order).

Table 6.7
The 14 Subscales: Scope and Meanings

Health Practitioner Motivation Subscale	Item no. and scope	High score meanings	Low Score meanings
1. Avoidance Needs	Four items all reverse scored: taps need to leave discomfort behind, prefers anonymity when not at work.	High score means *low avoidance* needs and probable strong attraction to prospective job; not de-motivated by afterhours contact with community.	Possibly seeking new job to escape discomforts of current job and to heal from previous setbacks; seeks privacy outside work hours.
2. Belonging Needs	Five items, nil reversed; scopes need for sense of place, team membership, respect, familiarity and participation in community.	Seeks member-ship and acceptance of committed team; wants sense of familiarity, participation, belonging and respect in and out of workplace environment.	Disinterested in what others think; little felt need for feeling accepted or belonging; low attraction to team work.
3. Challenge Seeker	Four items, nil reversed; scopes appetite for adventure, risk, new experiences and change.	Motivated by work that offers adventure and risk; relishes change; bored by routine, low challenge.	De-motivated by sense of risk, lack of certainty, and new challenging work environments.
4. Clinical Competence	Three items, one reversed; taps interest in developing advanced clinical skills, meeting large and complex clinical loads.	Relishes high clinical demand and opportunity to develop advanced skills.	De-motivated by complex and high clinical demands; not driven to develop advanced skills.
5. Clinical Self-Containment	Eight items, all reverse scored: scopes felt need for professional supervision, support, positive feedback, guidance.	Low felt need for oversight, clinical support; motivated by work which offers high professional autonomy.	Motivated by prospect of strong clinical and other support; will leave a job where these are lacking.
6. Compassion	Eight items, nil reversed; taps compassion driven, altruistic motivators to serve those in high need	Feels a strong pull to serve the underserved; seeks meaning, purpose from "making a difference".	Low sense of altruism concerning those with special needs; pragmatic reasons to seek a job.

Health Practitioner Motivation Subscale	Item no. and scope	High score meanings	Low Score meanings
7. Financial Incentives	Eight items, nil reversed; scopes power of income, allowances, reduced tax, cash bonuses, leave conditions to motivate the respondent.	Job decisions very monetary driven, in both cash and kind.	Monetary incentives relatively weak motivators in seeking a new job.
8. Intercultural Interests	Five items, nil reversed; taps desire to learn about Indigenous (especially ATSI) cultures & develop intercultural skills.	Strong interest in developing skills in working with Indigenous people to help "Close the [Indigenous/non-Indigenous health status] Gap".	Low interest in working in the intercultural arena.
9. Lifestyle	Three items, one reverse scored; scopes felt need for healthy lifestyle.	Very motivated towards work which enables balanced lifestyle, in an appealing environment.	Not very concerned with or motivated by lifestyle/balance issues.
10. Living Location Preferences	Four items, two reverse scored: scopes preferences around country vs city living.	Motivated towards experiencing life and work in remote and very remote locations and their associated living and geographic extremes.	Prefers to live urban and/or be able to easily access city life, while avoiding work in immoderate environment.
11. Personal Demand Preferences	Five items, all reversed; scopes motivating influences of typical very remote Indigenous working conditions.	Motivated towards a job with unclear social/clinical/time boundaries, possibly low back-up with clientele with limited English.	Very probably de-motivated by out-of-hours work, weak social/clinical boundaries, and/or low back-fill and/or limited English speaking service recipients
12. Primary Health Care Orientation	Eight items, nil reversed; taps motivating influences of early intervention, educating, ill health prevention, systemic approach, multi role work, including possibly research and leadership	Motivated by a socially assertive PHC preventative and positive role involving community engagement.	Avoidant of community health engagement & out of hours of work; wants clear work/non-work boundaries.

Health Practitioner Motivation Subscale	Item no. and scope	High score meanings	Low Score meanings
13. Relationship Imperatives	Three items, nil reversed; tapping priorities around "significant other" relationships.	Job decisions very influenced by practitioner's perceptions of significant others' needs.	Job decisions not influenced by the needs of others.
14. Spiritual Beliefs	Three items, nil reverse scored: scopes spiritual beliefs around God's will and gifts.	Strong spiritual beliefs re God's will; sense of gift to help the less fortunate.	Pragmatic beliefs around what needs to be done.

CHAPTER 7:   RESULTS 3
ADDRESSING THE RESEARCH QUESTIONS PART I

7.1   Introduction.

In this and the next chapter, the 14 retained subscales are explored, with particular reference to the very remote and the very remote Indigenous community context. While these subscales have yet to be confirmed in a second wave of administration, each has been the similar product of two independent modes of exploratory factor analysis and all later demonstrated sufficient reliability and validity to now be used conditionally. Exposing them to the following analyses added further to appraising their validities. The research questions listed in earlier chapters were de- and re-constructed as follows, to accommodate the new knowledge to hand:

Research Question 1 (RQ1 i-vi) now comprises six parts. These are contained as RQ1 because they all address the subscales' abilities to discriminate between independent variables relating to Very Remote (VR) work experience. The term "Very Remote" is all-inclusive, referring to VR town, VR mining, VR Indigenous communities, and VR overseas work. Research Question 2 involved assessing the power of the 14 subscales to distinguish between practitioners with very remote Indigenous community experience and no such experience.

The nonparametric Mann-Whitney U (MWU) test for significant differences between groups was chosen to address both RQs 1 and 2, for reasons outlined in Method. Each group's mean score ranking was obtained for each subscale, as was the direction of each group's median score for each category.

The assumptions and conditions required for MWU were met in addressing RQs 1 and 2. The independent variables all comprised two categories; sample numbers of all variables used were adequate; the observations in each comparison

group (for example, practitioners with and without VR experience) were mutually independent; and the dependent variables (the 14 subscales), were all continuous variables.

The effect size ($r = z /\sqrt{n}$) used in the following MWU analyses provided an estimate of the influence produced by the independent variable, such as VR work experience, on each of the dependent variables (the 14 subscales). Conversely, effect size also gave some guide to how sensitive each subscale was to the independent variable. This parameter helped assess how effective, as compared with trivial, is the degree of influence of the independent variable , using Cohen's (1988) ratings. In so doing, it enhanced the significance of difference probability ratings, in these MWU analysis.

Research Question 2 (see Section 7.2) explored significant differences within the independent variable Very Remote Indigenous community work experience (VRI) for each of the 14 subscales. The independent variable comprised two categories, those with more than three years' work experience (VRI 3yrs+) and those with no VRI work experience (No VRI). More than three years' VRI experience was used as the benchmark minimum for "substantial" VR experience, based on the literature review findings concerning length of retention distributions (e.g., Garnett et al. 2008) and the availability of suitable sample sizes.

7.1.1 Differences between the Very Remote and Nil Very Remote work experience groups on 14 subscale scores.

The revised RQ 1i) asked:

Do the total score distributions of the 14 work motivation subscales of the health practitioner with any VR work experience differ significantly from those with no VR work experience?

The HPMS question Q0017 "Have you ever worked 'Very Remote' in Australia and/or overseas?" provided the information needed to answer RQ 1i). Of the 518 (94.7% of total sample) practitioners who responded to this question, 325 (62.7%) practitioners reported having worked in a VR work setting at some stage, while 193 (37.3%) reported having never done so.

The results of the MWU analysis are presented in Table 7.1. Seven subscales produced significant differences in total score distributions between the VR and No VR work experience groups. They are listed first, in descending order of difference between the VR and No VR work experience groups' medians, significance of mean ranking difference and effect sizes.

The first four subscales, *Relationship Imperatives, Living Location Preferences, Challenge Seeker* and *Personal Demand Preferences,* all produced highly significant mean ranking differences ($p< .001$) and marked difference in median scores (≥ 2.0 mean scale score units) between the VR and No VR groups. In terms of influence on the subscales by the VR work variable, its effect sizes on *Relationship Imperatives and Living Location Preferences* (.36;.31) lay in the medium range, using Cohen's (1988) well used, albeit arbitrary, rating scale (.1= small; .3 = medium; .5 = large).

While *Relationship Imperatives* was the most influenced by the VR work experience variable, the VR work experience group produced a lower median total score than the No VR work group. This indicated that the *lower* a respondent's subscale score ranked, indicating less need to consider the needs of "significant others" in job choosing, the more likely the respondent would belong to the VR work experience group than the No VR group. Not unexpectedly, the higher the respondent's Relationship Imperatives score, reflecting work motivations

associated with the perceived needs of significant others, the more likely the practitioner would belong to the No VR group.

The *Living Location Preferences* subscale showed the second strongest effect size, with the VR work experienced group producing the higher median total score. This indicated that those in the VR work experience group ranked overall higher in score than those in the No VR group on preferences for bush living and accessing wilderness. This also conveyed that the VR group felt, overall, the lower felt need for proximity to urban amenity and lower concern for extreme climatic conditions than the No VR group.

Challenge Seeker was the third most responsive subscale, with the VR work experienced group higher in both median score than the No VR work group. The VR work experienced group also ranked overall higher (p< .001) than the Non VR group, with an effect size (.27) rating high in Cohen's (1988) "small" range. This suggested that the VR experienced group was overall very significantly but not extremely more attracted to work offering adventure, risk, new experiences and changeable demands in work, than the No VR group.

Personal Demand Preferences produced the fourth largest significant *z*-score (*p*<.001) and associated difference between groups, with the VR work group median higher than that of the No VR group. The effect size (.26) rated high in the small range. These figures suggested that the VR work experience group ranked more strongly overall than the Non VR group on attraction to work involving high personal availability after hours, low formal structure and thin social/professional boundaries.

Table 7.1

Work motivations and Very Remote work experience: MWU analysis

Subscale	VR work/ No VR work	n	%	Median	Mann-Whitney U	z	P	Effect Size r
Relationship Imperatives	**Yes**	**284**	**63.4**	**11.00**	**13271.00**	**-7.63**	**.001**	**.36**
	No	**164**	**36.6**	**14.00**				
Living Location	**Yes**	**290**	**64.0**	**20.00**	**14781.50**	**-6.65**	**.001**	**.31**
	No	**163**	**36.0**	**17.00**				
Challenge seeker	**Yes**	**291**	**64.0**	**17.00**	**15999.50**	**-5.86**	**.001**	**.27**
	No	**164**	**36.0**	**15.00**				
Personal Demand Preferences	**Yes**	**278**	**64.2**	**21.00**	**14936.00**	**-5.31**	**.001**	**.26**
	No	**155**	**35.8**	**19.00**				
Clinical Self-containment	**Yes**	**283**	**64.0**	**19.00**	**15854.00**	**-5.17**	**.001**	**.24**
	No	**159**	**36.0**	**16.00**				
Intercultural Interests	**Yes**	**289**	**63.7**	**24.00**	**18246.50**	**-4.17**	**.001**	**.20**
	No	**165**	**36.3**	**21.00**				
Spiritual Beliefs	**Yes**	**272**	**63.4**	**9.00**	**18165.00**	**-2.59**	**.010**	**.13**
	No	**157**	**36.6**	**10.00**				
Avoidance Needs	Yes	276	64.0	15.00	19039.50	-1.90	.057	.09
	No	155	36.0	15.00				
Belonging Needs	Yes	282	63.5	24.00	20564.50	-1.76	.079	.08
	No	162	36.5	24.00				
Clinical Competence	Yes	287	63.5	14.00	21730.00	-1.47	.143	.07
	No	165	36.5	13.00				
PHC Orientation	Yes	264	63.3	35.00	19148.50	-.88	.376	.04
	No	153	36.7	36.00				
Financial Interests	Yes	251	61.5	28.00	19189.50	-.44	.657	.02
	No	157	38.5	28.00				
Compassion	Yes	278	63.6	39.00	21090.00	-.80	.425	.03
	No	159	36.4	40.00				
Lifestyle	Yes	283	63.3	12.00	22662.50	-.42	.673	.01
	No	164	36.7	12.00				

Significant findings (p< .05) shown in **bold**

The two subscales *Clinical Self-containment and Intercultural Interests*

produced significant mean rank and median differences between the VR and No

VR work groups, with the VR work experienced group ranking the higher of the

two in both scales. The effect sizes of the VR variable on these two scales (.24 and .20) were midway between small and medium, using Cohen's (1988) rating scale, and so were not trivial in practice. These results suggested that the VR work experienced practitioners were mildly but still significantly more attracted than the No VR practitioners to a workplace that requires an autonomous approach and strong interest in intercultural matters.

The *Spiritual Beliefs* subscale produced the smallest of the significant differences and effect sizes. As for *Relationship Imperatives*, the VR work experience group's median total score was smaller than that of the No VR work experience group. The difference in rankings was significant ($p< .010$) but the effect size (.13) bearing on this subscale was much less than those of the above scales. These results suggest that the *Spiritual Beliefs* subscale could very mildly discriminate between the VR and No VR groups, with the VR work experienced practitioners rating mildly *less influenced* by spiritual beliefs with regard to job choice, compared with the No VR practitioners.

7.1.1.1 *Summary.*

In summary, the above results provide evidence of significant difference between total score distributions, including mean rankings and medians, on 7 of the 14 work motivation subscales, between VR work experienced health practitioners and those with no VR experience of any kind. All but one difference was in the expected direction, so supporting the construct and predictive validities of the six subscales. The exception was *Spiritual Beliefs*, which mildly countered the 3Ms notion of "missionary" motivations being associated with very remote work. This did not put the validity of *Spiritual beliefs* into question so much as to provide negative support for the 3Ms construct. The only subscales which did not produce a significant difference in the expected direction were *Avoidance Needs*

($p=.057$), noting that the higher score signals *lower* avoidance needs, and *Lifestyle*, which registered no significant difference at all. The remaining subscales were not expected to be excessively biased by VR experience, on *a priori* grounds.

7.1.2 Motivational differences and preferred location of residence. *Research Question 1 ii) asked:*

Are the subscales sensitive to work motivations of practitioners who prefer to live continuously in the VR community when providing VR work, compared with those who prefer to fly/drive in and out on a VR work sojourn basis?

The HPMS question (HPMS: Q 0020) relevant to this research question asked: "Where do (or did) you prefer to actually reside while working Very Remote, given the choice?" Table 7.2 provides the response frequencies for this question. A total of 315 practitioners responded, being 96.9% of the 325 who reported having had some VR work experience (HPMS Q 0017) of any kind.

To match the categories used in the question, while preserving adequate sample size for each category, the independent variable Preferred Living Location was formed to comprise two categories: "In the very remote town or community of your workplace" ($n = 183$; 58.1%) and "Prefer-to-Live Elsewhere" ($n= 63+ 44+ 17+ 8 = 132$; 41.9%). The latter option required travel by road vehicle, boat or aircraft to attend VR work. The dichotomous nature of the variable, the adequate sample numbers involved, the mutual independence of the observations in the two groups, and the continuous nature of the 14 subscales, together met the assumptions and conditions required for MWU testing.

Table 7.2
Living Location Preferences when working Very Remote

Living Location Preference	n	%
In the very remote town or community of your workplace	183	58.1
A remote community/town - Drive In /Drive Out (DIDO) or Fly In/ Fly out	63	20.0
A regional community/town (DIDO or FIFO)	44	14.0
A major city (FIFO)	17	5.4
Other	8	2.5
Total	315	100.0

The MWU test of group differences results are listed in Table 7.3 below. It shows the Prefer-to-Live VR group differed significantly from the Prefer-to-Live Elsewhere group, on *Living Location Preferences* ($p< .001$) and *Personal Demand Preferences* ($p< .027$). The Prefer-to-Live VR group produced the higher median scale score totals on both subscales. The median differences were small (one unit each), but the levels of significance of difference and effect sizes suggested that the differences, at least for *Living location preferences,* were not in effect trivial.

Table 7.3
Preferred Living Locations while working Very Remote, as they relate to Work Motivations: MWU Analysis

Subscale	Live Elsewhere (0); Live VR community (1)	n	%	Median	Mann-Whitney U	z	p	Effect Size r
Living Location Preferences	0	120	41.5	19.00	6888.00	-4.67	.001	.27
	1	169	58.5	20.00				
Personal Demand Preferences	0	112	40.6	20.00	7751.00	-2.21	.027	.13
	1	164	59.4	21.00				
Compassion	0	113	40.9	40.00	8012.50	-1.84	.066	.11
	1	163	59.1	39.00				

Subscale	Live Elsewhere (0); Live VR community (1)	n	%	Median	Mann-Whitney U	z	p	Effect Size r
Intercultural Interests	0	119	41.5	23.0				
					8757.00	-1.80	.073	.11
	1	168	58.5	24.0				
Clinical Competence	0	116	40.7	14.0				
					8526.00	-1.57	.116	.09
	1	169	59.3	14.00				
Belonging Needs	0	114	40.7	23.00				
					8591.00	-1.31	.189	.08
	1	166	59.3	24.00				
Relationship Imperatives	0	114	.4	11.00				
	1	168	59.6	11.00	8526.00	-1.57	.116	.09
Clinical self containment	0	114	40.6	18.00				
					8919.00	-.90	.368	.05
	1	167	59.4	19.00				
Spiritual Beliefs	0	113	41.7	10.00				
					8647.00	-.44	.659	.03
	1	158	58.3	9.00				
Avoidance Needs	0	114	41.6	15.00				
					8479.50	-.99	.320	.06
	1	160	58.4	15.00				
Challenge Seeker	0	120	41.5	17.00				
					9449.00	-.99	.321	.17
	1	169	58.5	17.00				
PHC Orientation	0	107	40.8	36.00				
					7997.50	-.49	.624	.03
	1	155	59.2	34.00				
Financial Interests	0	102	41.0	29.00				
					7102.50	-.71	.480	.04
	1	147	59.0	28.00				

Significant findings ($p < .05$) shown in **bold**

Research Question 1 (ii) (continued)

Living Location Preferences produced an effect size of .27, meaning that the variable Preferred Living Location influenced this scale to close to a medium degree (Cohen 1988). This suggested that the practitioner who preferred to live in the VR community when employed there would, compared with the practitioner who preferred to work VR on a sojourn basis, report a significantly higher attraction to work in "the bush", being near wilderness areas, with associated acceptance of climate extreme, and little felt need for close urban amenity. This finding supports the construct validity of the *Living location preferences* subscale.

Personal Demand Preferences registered significant (p< .027) difference between groups but small effect size (.13) in terms of influence on scale score. This suggested that the practitioner who prefers to live VR continuously, compared with the practitioner who prefers to live elsewhere and visit, will be mildly more attracted to work that requires her/him to be readily accessible to, and familiar and engaged with, the VR host community, where unclear work/social boundaries will often prevail.

7.1.3 Motivational differences and longest continuous length of stay in a VR workplace

Research Question 1 iii) asked:

In what ways do the work motivation subscale scores of practitioners who stay for long continuous periods in VR work differ significantly from those who have stayed only for brief sojourns?

Relevant to this question, HPMS Q 0019 asked "What is the longest single period of employment that you have lived and worked in a very remote workplace?" The response distribution for this question is outlined in Table 7.4.

Table 7.4
Longest continuous length of stay in the Very Remote workplace: variable distribution

Longest Single VR Job Stay	n	%
Less than 1 month	35	11.0
1 to 3 months	49	15.4
Over 3 to 6 months	28	8.8
Over 6 to 12 months	35	11.0
Over 1 year to 3 years	70	22.0
Over 3 to 5 years	47	14.8
Over 5 years	54	17.0
Total	318	100.0

A total of 318 practitioners responded to the question, being 97.8% of the 325 who reported having some VR work experience. The two category independent variables formed to match RQ 1(iii)'s two categories "Long continuous periods" and "Brief sojourns" involved merging the two longest "Longest Lengths of Stay" figures and the two briefest "Longest Lengths of Stay" figures. This produced the two group categories:

Short Stay (n = 35+49 = 84; 26.4%) and Long Stay (n = 47+54 = 101; 31.8%).

These two time periods were chosen to provide strong sample numbers while meeting the two category descriptions in RQ.1iii) (see Table 7.5).

Table 7.5
Work Motivations and longest Very Remote stay: MWU Analysis

Subscale	0-3m:.00 >3yrs:1.00	n	%	Median	Mann-Whitney U	z	p	Effect Size r ($z/\sqrt{n}$)
Living Location Preferences	.00	79	45.9	18.0	1969.5	-5.26	.001	.40
	1.00	93	54.1	21.0				
Belonging Needs	.00	77	46.7	23.0	2485.00	-2.96	.003	.23
	1.00	88	53.3	25.0				
Personal Demand Preferences	.00	73	45.6	20.0	2448.50	-2.53	.012	.20
	1.00	87	54.4	22.0				
Intercultural Interests	.00	79	46.5	23.0	3077.50	-1.62	.105	.12
	1.00	91	53.5	25.0				
Clinical Competencies	.00	76	45.8	13.0	2931.00	-1.60	.110	.12
	1.00	90	54.2	14.0				
PHC Orientation	.00	72	46.8	34.0	2536.00	-1.51	.131	.12
	1.00	82	53.2	35.5				
Relationship Imperatives	.00	76	45.8	11.0	3039.50	-1.24	.214	.09
	1.00	90	54.2	11,0				
Lifestyle	.00	77	47.0	12.0	3056.50	-.99	.322	.08
	1.00	87	53.0	12.0				
Clinical self containment	.00	75	44.6	18.0	3230.00	.82	.410	.06
	1.00	93	55.4	19.0				

Subscale	0-3m:.00 >3yrs:1.00	n	%	Median	Mann-Whitney U	z	p	Effect Size r (z /√n)
Financial Interests	.00	64	43.5	27.0				
					2463.00	-.76	.450	.06
	1.00	83	56.5	28.0				
Compassion	.00	75		39.00				
					2951.00	-1.165	.244	.09
	1.00	88		40.0				
Challenge Seeker	.00	78	45.9	17.0				
					3382.00	-.65	.517	.05
	1.00	92	54.1	17.0				
Avoidance Needs	.00	70	44.0	14.5				
					3067.50	-.17	.869	.01
	1.00	89	56.0	15.0				
Spiritual Beliefs	.00	72	45.3	9.00				
					3096.00	-.13	.901	.01
	1.00	87	54,7	10.0				

Significant findings (*p*<.05) in **bold**

The influence of the independent variable Longest Length of Stay in a VR
workplace on the practitioner's work motivation subscales was estimated using
the MWU analysis summarised in Table 7.5. The Short Stay and the Long Stay
groups differed significantly in mean rankings on the three subscales *Living
Location Preferences* (*p*< .001), *Belonging Needs* (*p*< .003) and *Personal Demand
Preferences* (*p*<.01). These are listed first in Table 7.5 in decreasing order of
significance and effect size, with the Long Stay group's subscale median scores
higher for all three subscales.

Living Location Preferences' effect size (.40; midway medium-large)
reflected a relatively strong influence by the Length of Stay variable on this
subscale. This indicated that the Long Stay practitioner group, when compared
with the Short Stay practitioner group, reported being significantly more attracted
to work in the "bush" environment, near wilderness, and was less deterred by
climate extreme and lack of proximity to urban amenity.

The *Belonging Needs* effect size (.23) reflected a significant but moderately
small difference between the total score distributions for the two Length of Stay
groups. This suggested that the longer stay group was more attracted than the

short stay group to work which provided the practitioner with a sense of belonging, respect, effective team membership and comfort in the job's surrounding community.

The *Personal Demand Preferences* effect size (.20) also reflected a significant but midrange small influence by Length of Stay on this subscale's scores. This indicated that the long stay practitioner group was, compared with the short stay group, more attracted to the job that requires the practitioner to be readily accessible to, and familiar and engaged in, the job's surrounding community, which will often exhibit unclear work/social boundaries.

In summary, these findings were all mildly supportive of the three subscales' criterion validities: it was expected on *a priori* grounds that the practitioner motivated (and not de-motivated) by such preferences would in each case be more likely to have the longer VR sojourn than the practitioner with less such preferences. The subscale *Intercultural interests* was expected to have been significantly more strongly rated by the Long Stay group; however, the VR environment was not exclusively "Intercultural".

7.1.4 Motivational differences and satisfaction with very remote work
Research Question 1 iv) asked:

Do health practitioners who were very satisfied with past VR work experience differ in work motivations from those who were very dissatisfied with past VR work experience and if so, how?

The relevant data for this question was produced from HPMS Q 0026: "As best you can recall, how satisfied were you with any past very remote work experience?" The response frequencies to this question are listed in Table 7.6.

Table 7.6

Satisfaction with Very Remote work experience: variable distribution

Satisfaction with past VR work	N	%
Extremely dissatisfied	3	.9
Very dissatisfied	10	3.0
Moderately dissatisfied	22	6.6
Not sure	11	3.3
Moderately satisfied	90	26.9
Very satisfied	158	47.3
Extremely satisfied	40	12.0
Total	334	100.0

To produce a dichotomous variable to best match the question's categories "Very satisfied" and "Very Dissatisfied" and to provide sufficient sample sizes, first the Extremely, Very and Moderately Dissatisfied groups were combined to form a combined "Dissatisfied" group category ($n = 3+10+22 = 35$; 10.5% of 334). The Very Satisfied ($n = 158$) group was compared with this aggregated Dissatisfied category using MWU, as were three more Satisfied group categories: Moderately plus Very Satisfied; Very Satisfied plus Extremely Satisfied; and Extremely Satisfied alone. Only "Extremely Satisfied" ($n = 40$; 12.0% of sample) produced significant difference and higher median total scores (≥ 2) when compared with the Dissatisfied group.

The first eight subscales listed in Table 7.7 all produced significant differences between the two groups, in descending order of significance and effect size. Five of the eight effect sizes were in Cohen's (1988) "medium" range, the lowest three being in the "small" range, but very close to "medium".

Table 7.7

Satisfaction with Very Remote work experience and Work Motivations: MWU analysis

Subscale	VR work Dissatis'n/ VR Extreme satisfaction:	n	%		Median	z	p	Effect Size r
Living Location Preferences	**.00**	**29**	**43.3**	**19.0**				
	1.00	**38**	**56.7**	**22.0**	**293.00**	**-3.29**	**.001**	**.40**
Compassion	**.00**	**30**	**45.5**	**38.5**				
	1.00	**36**	**54.5**	**45.5**	**310.50**	**-2.97**	**.003**	**.37**
Clinical competence	**.00**	**29**	**43.3**	**13.0**				
	1.00	**38**	**56.7**	**15.5**	**317.00**	**-2.98**	**.003**	**.36**
PHC Orientation	**.00**	**28**	**45.9**	**35.0**				
	1.00	**33**	**54.1**	**40.0**	**270.0**	**-2.66**	**.008**	**.34**
Challenge Seeker	**.00**	**30**	**44.1**	**16.0**				
	1.00	**38**	**55.9**	**20.0**	**378.00**	**-2.39**	**.017**	**.30**
Personal Demand Preferences	**.00**	**28**	**43.1**	**20.0**				
	1.00	**37**	**56.9**	**24.0**	**346.00**	**-2.29**	**.022**	**.28**
Intercultural Interests	**.00**	**30**	**44.8**	**23.5**				
	1.00	**37**	**55.2**	**26.0**	**381.50**	**-2.21**	**.027**	**.27**
Avoidance Needs	**.00**	**29**	**43.9**	**15.0**				
	1.00	**37**	**56.1**	**17.0**	**370.00**	**-2.16**	**.031**	**.27**
Clinical self containment	.00	30	44.8	17.0				
	1.00	37	55.2	18.0	455.00	-1.26	.206	.15
Belonging Needs	.00	28	44.4	24.4				
	1.00	35	55.6	26.0	402.5	-1.22	.223	.15
Relationship Imperatives	.00	27	42.2	10.0				
	1.00	37	57.8	11.0	422.00	-1.06	.290	.13
Lifestyle	.00	30	44.8	12.0				
	1.00	37	55.2	12.0	491.00	-.82	.412	.10
Spiritual Beliefs	.00	29	44.6	10.0				
	1.00	36	55.4	9.5	471.00	-.68	.499	.08
Financial Interests	.00	27	44.6	27.0				
	1.00	31	53.4	28.0	394.50	-.38	.708	.05

Significant (*p*<.05) findings in **bold**

These results indicate that the group of health practitioners who were Extremely Satisfied with past VR work experience rated very significantly higher than the Dissatisfied group, with the variable having medium influence (r ≥ .3), on five subscales, as listed below. In descending order of influence, they are accompanied by the work motivations that the Extremely Satisfied VR group ranked higher on than the Dissatisfied group:

- *Living Location Preferences:* the prospect of working in "the bush" and wilderness, with associated tolerance to climate extreme, along with little need for close urban amenity;

- *Compassion:* empathy and compassion for the underserved and needful;

- *Clinical Competence*: valuing opportunities to advance clinical competencies, beyond what would be expected in the non VR setting;

- *PHC Orientation*: preference for working to PHC principles, using preventative education and related health extension strategies;

- *Challenge Seeker*: attraction to work combining adventure, risk taking, accepting the challenges of change and uncertainty.

The Extremely Satisfied group also ranked significantly higher than the Dissatisfied group, in the three subscales listed below, in descending order of significance and effect size, which were all high range "small", using Cohen's (1988) grading. Each subscale is accompanied by the motivations that it relates to:

- *Personal Demand Preferences*: drawn to work requiring high personal accessibility to, and familiarity and engagement with, the community in which the job sits, with associated unclear work/social boundaries;

- *Intercultural Interests*: seeking to learn intercultural, especially Indigenous, cultural and related social and clinical matters;

- *Avoidance needs*: the higher score indicates *lower* need to escape unsatisfactory previous workplaces; hence, this result suggests that the Extremely Satisfied group was less driven by felt needs to escape previous unsatisfactory workplaces than the Dissatisfied group.

In summary, the above findings are affirming of the construct validities for those eight subscales which produced significantly stronger score distributions for the Extremely Satisfied group compared with the Dissatisfied group. The extremely satisfied practitioner could reasonably be expected to feel strong motivations in many, but not necessarily all, facets of VR work. Again, it is notable that of the subscales most closely paralleling the 3Ms (*Spiritual beliefs; Financial interests; Avoidance needs*), only *Avoidance needs* registered a significant scoring difference between the two groups. This difference was in the direction of the Extremely Satisfied VR practitioner being *less avoidant* than the Dissatisfied group. The relatively low sample numbers for this comparison weaken confidence in these findings somewhat, but the trend with this subscale will be closely monitored. This will be discussed further in Chapter 9.

7.1.5 Motivational differences and self-rated probability of ever seeking VR work.

Research Question 1 v) asked:

In what ways do the work motivations of the practitioner groups with as yet no VR work experience, who rate themselves as "extremely unlikely" to ever seek VR work, differ from those who rate themselves as "probable" or "very probable" of seeking VR work?

The HPMS Q 0024 was relevant to this question; it asked "How probable do you think it is that you will ever seek Very Remote work some day?" The response frequencies for this question are tabled in Table 7.8. A total 194

practitioners responded, being 100% of those who reported having no VR work experience in HPMS Q0017.

Table 7.8
Self Rated likelihood of ever seeking Very Remote work: Variable distribution

Self-rating: likelihood of ever seeking VR work (for first time)	*N*	%	Cumulative %
Extremely unlikely	47	24.2	24.2
Unlikely	53	27.3	51.5
Possible	60	30.9	82.5
Probable	17	8.8	91.2
Very probable	17	8.8	100.0
Total	194	100.0	

To form an adequate variable for analysis in terms of sample size, along with best match with the question categories, the "Probable" and "Very Probable" categories were accumulated to form the "Probable/Very Probable" group ($n = 17+17 = 34$; 17.6%). The "Extremely Unlikely to seek VR work" group ($n = 47$; 24.2%) was retained, being of sufficient sample size and well matched to the corresponding category in the question. The two categories made a total sample of 81 respondents for MWU analysis.

The differences between these two groups' distributions of mean score rankings on the 14 subscale measures were then MWU tested for significance, providing the findings in Table 7.9. The "Probable/very probable" group (for seeking VR work) ranked significantly higher on four subscales ($p < .05$), along with higher median total scores, compared with the "Extremely Unlikely" group. These subscales and their brief motivational implications follow, in descending order of effect size:

Living Location Preferences (effect size .57; strong): the probable/very probable group ranked higher affinity with working in "the bush", near wilderness, with tolerance to climate extreme, with little need for close urban amenity, than did the Extremely Unlikely group;

Personal Demand Preferences (effect size .52; strong): the probable/very probable group ranked higher affinity than did the Extremely Unlikely group, with work requiring high personal accessibility to, and familiarity and engagement with, the community in which her/his job sits, along with tolerance to unclear work/social boundaries;

Intercultural Interests (effect size .39; medium effect): the probable/very probable group ranked moderately higher interest in work in intercultural, especially Indigenous, matters, compared with the Extremely Unlikely group.

Clinical competence (effect size .23; midway small-medium): the probable/very probable group were mildly more drawn to work which provided opportunities to advance clinical competencies, beyond that which would be expected in the non VR setting.

Table 7.9

Self-rated likelihood of ever seeking Very Remote work: MWU Analysis

Subscale	VR work? Extremely unlikely: .00 Probable/very probable 1.00	*N*	%	Median	MWU U	Z	P	Effect Size *r*
Living Location Preferences	.00	39	56.5	15.0				
	1.00	30	43.5	20.0	198.00	-4.70	**.001**	**.57**
Personal Demand Preferences	.00	40	58.8	16.5				
	1.00	28	41.2	22.0	216.00	-4.30	**.001**	**.52**
Intercultural Interests	.00	40	57.1	20.0				
	1.00	30	42.9	24.0	325.5	-3.27	**.001**	**.39**
Clinical Competence	.00	40	57.1	13.0				
	1.00	30	42.9	14.5	436.50	-1.95	**.051**	**.23**
Clinical self containment	.00	39	57.4	15.0				
	1.00	29	42.6	17.0	428.00	-1.71	.087	.21
Relationship Imperatives	.00	40	57.1	14.0				
	1.00	30	42.9	13.0	490.50	-1.31	.190	.16
Avoidance Needs	.00	38	56.7	14.5				
	1.00	29	43.3	15.0	495.50	-1.29	.196	.16
Belonging Needs	.00	40	57.1	24.0				
	1.00	30	42.9	25.0	492.50	-1.28	.199	.15
Compassion	.00	37	55.2	39.0				
	1.00	30	44.8	41.0	483.50	-.90	.367	.11
Challenge seeking	.00	41	58.6	15.0				
	1.00	29	41.4	16.0	552.50	-.50	.615	.06
Lifestyle	.00	40	57.1	12.0				
	1.00	30	42.9	12.0	568.00	-.39	.695	.05
Spiritual beliefs	.00	40	58.8	10.0				
	1.00	28	41.2	11.0	536.00	-.30	.764	.04
PHC Orientation	.00	39	59.1	36.0				
	1.00	27	40.9	36.0	513.50	-.17	.865	.02

Significant (*p*< .05) findings in **bold**

7.1.6 Motivational differences and early rural/remote educational exposure.

Research Question 1vi) asked:

Do the work motivations of health practitioners who report exposure to rural or "bush" experience in their educationally formative period, significantly differ from those who report no such experience, especially with regard to VR work choice?

Relevant to this question, HPMS Q 0013 asked: "In your schooling, university, internship and/or other formal training placement years, did you spend significant total time (months or years) in locations you consider 'rural' or 'in the bush'?" Of the 534 respondents (97.6% of total HPMS sample) to this question, 262 (49.1%) reported some early rural experience and 272 (50.9%) reported no such experience. These responses provided the two-category independent variable Early Rural/"bush" Learning Experience. The MWU analysis was used to test the significance of difference between the two groups on the 14 subscales' mean score rankings. Their significance ratings, median differences and associated effect sizes are presented in Table 7.10.

The two groups differed significantly in total score mean rankings on only two subscales, *Living Location Preferences* and *Belonging Needs,* both with small effect sizes. The Early Rural Experience group produced a significant difference ($p< .001$) in total score distributions and a higher median total score (by 2 units) on the *Living location preferences* scale compared with that of the No Early Rural experience group. This suggested that the Early Bush Experience group overall were mildly more attracted to living and working in "the bush" and near wilderness, with or without climate extreme, along with little need for proximity to urban amenity.

The Early Rural Experience group also rated significantly higher (*p*<.03) on the Belonging Needs subscale, but with no difference in the median total scores and with small effect size.

Table 7.10

Work Motivation differences between those with and without Early Rural or "Bush" Learning Experience: MWU Analysis

Scale	Early Rural Experience: Nil =.00; Some = 1.00	N	%	Median	MWU	z	p	Effect size r
Living Location Preferences	.00	232	51.2	18.0				
	1.00	221	48.8	20.0	20756.00	-3.52	**.001**	**.17**
Belonging Needs	.00	228	51.4	24.0				
	1.00	216	48.6	24.0	21719.50	-2.16	**.031**	**.10**
Challenge Seeker	.00	233	51.2	16.0				
	1.00	222	48.8	17.0	23489.50	-1.70	.089	.08
Relationship Imperatives	.00	227	50.7	12.0				
	1.00	221	49.3	12.0	23760.50	-.97	.332	.05
Clinical Competence	.00	231	51.1	14.0				
	1.00	221	48.9	13.0	24738.00	-.57	.568	.03
PHC Orientation	.00	212	50.8	35.0				
	1.00	205	49.2	36.0	20825.00	-.74	.461	.04
Personal Demand Preferences	.00	219	50.6	20.0				
	1.00	214	49.4	20.0	23054.00	-.29	.770	.01
Intercultural Interests	.00	233	51.3	24.0				
	1.00	221	48.7	23.0	24865.50	-.63	.527	.03
Lifestyle	.00	229	51.2	12.0				
	1.00	218	48.8	12.0	24468.50	-.37	.712	.02
Clinical Self Containment	.00	227	51.4	18.0				
	1.00	215	48.6	18.0	23614.50	-.59	.556	.03
Avoidance Needs	.00	221	51.3	15.0				
	1.00	210	48.7	15.0	23042.00	-.13	.899	.01
Financial Interests	.00	209	51.2	28.0				
	1.00	199	48.8	29.0	19983.00	-.68	.495	.03
Compassion	.00	225	51.5	39.0				
	1.00	212	48.5	40.0	22257.00	-1.21	.227	.06
Spiritual Beliefs	.00	218	50.8	9.0				
	1.00	211	49.2	10.0	22134.50	-.68	.499	.03

7.1.7   Summary: Subscale scores and VR related variables.

In the answers to RQs 1i-vi), twelve of the 14 motivation subscales tested in this MWU analysis were influenced by at least one of the six independent variables of interest relating to VR work choice, to significant effect. The subscales are listed from the top of Table 7.11, as follows:

Living Location Preferences: All six variables of interest produced significant differences between their comparison groups on this scale, with one having large effect, four having medium effect and one having small effect.

Personal Demand Preferences: Five of the six variables produced significant group differences on this scale, including one large, two medium and two small effects.

Intercultural Interests: Three of the six variables of interest produced significant group differences on this scale, with two having medium and one having small effect.

Clinical Competence Seeking, Challenge Seeking and Belonging Needs each registered significant differences in influence by three of the independent variables, with small to medium effect on each scale.

Six subscales each produced a significant difference on mean rankings on only one of the six variables.

Two subscales, *Lifestyle* and *Financial Interests,* did not register any significant differences between any of the independent variable groups and so are not listed in Table 7.11.

Table 7.11

Summary: Effect sizes of six Very Remote Variables on 12 Motivation Subscales

Effect size classification: .1= small .3; medium ; .5 = large (after Cohen 1988); only effect sizes ≥ .10, which

Subscale	RQ 1i): VR work experience: Some / none	RQ 1ii): Prefer to live in VR community: Yes/no	RQ 1iii): Length of continuous time in VR community:	RQ 1iv): Past VR work Satisfaction: Exceedingly high/dissatis-fied	RQ 1v): Probability VR work: Probably/ extremely unlikely	RQ 1vi): Early rural experience: Some/none
Living Location	.31	.27	.40	.40	.56	.17
Personal Demand Preferences	.26	.13	.20	.28	.52	
Intercultural Interests	.20			.27	.39	
Clinical Competence				.36	.23	
Challenge Seeker	.27			.30		
Belonging Needs			.23			.10
Relationship Imperatives	.36					
PHC Orientation				.34		
Compassion				.33		
Avoidance Needs				.27		
Clinical Self Containment	.24					
Spiritual Beliefs	.13					

are associated with significant differences (p< .05) in mean rankings, are shown.

Of the independent variables listed across the top of the table, *Satisfaction with past VR work* was the most influential dichotomous variable, producing significant differences on eight of the 12 subscales listed, all with medium effect sizes, using Cohen's (1988) rating classification. *VR work experience* was the next most influential, with significant influences on seven subscale score rankings. These ranged in influence on each subscale between small (*Spiritual Beliefs; Intercultural interests; Clinical self-containment*) and medium (*Relationship Imperatives; Living Location Preferences; Challenge Seeker*).

The least influential independent variables were Preferred Living Location (VR host community or Elsewhere) and Early Rural Experience (some or none), each producing two significant differences, with influence ranging from low medium to very small. The implications behind the mild Early Rural Experience influence on subscale scores will be re-visited in Chapter 9: Discussion.

In these results, a dichotomous variable having small or no influence on a subscale means that there is little or no difference between the VR related and the non VR related group on how that motivation measure ranks. It does not *necessarily* mean that the measured motivations is not present. It may be strongly present but equally so in both groups. For example, for Compassion, the median scores (No rural exposure 39.0; some exposure 40.0; maximum score 48; see Table 7.10) show that compassion related motivations were similarly strong in each of the two groups.

7.2 Establishing subscale sensitivity to substantial very remote Indigenous community work experience

In the context of the results produced so far, RQ 2 as proposed in Chapter 1 was updated as follows:

Do health practitioners with more than three years' Very Remote Indigenous (VRI) community work experience significantly differ in mean total score distributions on some or all of the 14 subscales, compared with practitioners who have no VRI experience? If yes, in what way(s)?

Relevant to this question, the HPMS collected total lengths of time that practitioners had worked at each of nine ARIA+ levels of remoteness. Table 7.12 provides the frequencies of total Very Remote work experience for Very Remote, with the sub-category "Mainly Indigenous community". Using the MWU test of difference between groups, the mean total scores of the 14 subscales were ranked

using two categories of VRI experience: more than three years' VRI total work

experience (VRI 3yrs+; $n = 98$) and Nil VRI work experience (No VRI: $n = 301$).

The figure of "more than three years' VRI work experience" was chosen as

being "substantial" for this and the following research questions because this

period was approaching the five years that has been cited as possibly optimal

(Humphreys, Wakerman, Pashen, et al., 2009), while also providing samples of

adequate number.

Table 7.12
Total length of work experience in Very Remote Indigenous communities: variable distribution

Total time of work	n	%
Nil	301	58.0
up to 1 month	8	1.5
over 1 to 3 months	16	3.1
over 3 to 6 months	23	4.4
over 6 to 12 months	21	4.0
over 12 months to 3 years	52	10.0
over 3 to 5 years	46	8.9
over 5 to 10 years	28	5.4
over 10 to 15 years	17	3.3
over 15 years	7	1.3
Total	519	100.0

The VRI variable produced significant differences in mean total scale score

rankings and median differences on the first seven subscales listed in Table 7.13,

in descending order of effect size. The total score distributions produced by the

VRI 3yrs+ and No VRI groups differ very significantly on all seven scales. The

significant findings are summarised as follows.

Table 7.13

Difference in Motivation subscales scores of practitioner groups with VRI3yrs+ as compared with No VRI community experience: MWU Analysis

Subscale	Work experience (VRI)	N	%	Median	Mann-Whitney U	Z	p	Effect size r
Relationship Imperatives	**Nil VRI**	**257**	**75.1**	**13.0**	**5455.50**	**-6.95**	**.001**	**.38**
	VRI 3yr+	**85**	**24.9**	**10.0**				
Living Location	**Nil VRI**	**258**	**74.8**	**18.0**	**7354.50**	**-4.83**	**.001**	**.26**
	VRI 3yr+	**87**	**25.2**	**20.0**				
Clinical self containment	**Nil VRI**	**254**	**75.1**	**17.0**	**7010.00**	**-4.72**	**.001**	**.26**
	VRI 3yr+	**84**	**24.9**	**19.0**				
Intercultural interests	**Nil VRI**	**260**	**75.4**	**22.0**	**7914.00**	**-3.94**	**.001**	**.21**
	VRI 3yr+	**85**	**24.6**	**24.0**				
Challenge seeker	**Nil VRI**	**260**	**75.1**	**16.0**	**8757.00**	**-3.03**	**.002**	**.16**
	VRI 3yr+	**86**	**24.9**	**17.0**				
Lifestyle	**Nil VRI**	**258**	**75.7**	**12.0**	**8540.00**	**-2.84**	**.004**	**.15**
	VRI 3yr+	**83**	**24.3**	**12.0**				
Personal Demand Pref	**Nil VRI**	**243**	**73.9**	**19.0**	**8413.50**	**-2.69**	**.007**	**.15**
	VRI 3yr+	**86**	**26.1**	**21.0**				
Clinical Competence	Nil VRI	258	.75	13.5	9785.00	-1.65	.099	.09
	VRI 3yr+	86	.25	14.5				
PHC Orientation	Nil VRI	240	75.5	36.0	9152.00	-.30	.768	.02
	VRI 3yr+	78	24.5	35.5				
Avoidance needs	Nil VRI	248	74.9	15.0	9790.50	-.67	.505	.04
	VRI 3yr+	83	25.1	15.0				
Belonging needs	Nil VRI	256	75.3	24.0	9745.50	-1.29	.196	.07
	VRI 3yr+	84	24.7	24.0				
Financial interests	Nil VRI	238	76.0	28.0	8174.50	-1.10	.272	.06
	VRI 3yr+	75	24.0	28.0				
Compassion	Nil VRI	251	75.1	35.0	9355.00	-1.40	.163	.02
	VRI 3yr+	83	24.9	34.0				
Spiritual Belief	Nil VRI	245	74.5	10.0	9102.00	-1.59	.113	.09
	VRI 3yr+	84	25.5	9.0				

*Significant (p< .05) findings listed in **bold***

Subscale *Relationship Imperatives* (total score range 3 - 18) produced a highly significant difference ($p<.001$) between the VRI 3yrs+ and No VRI groups in mean total score ranking. The median mean total score of the No VR group (13.0; $n = 257$) was three units higher than that of the VRI 3yrs+ group (10.0; $n = 85$). These results and the medium effect size ($r = .38$) indicated that overall, the VRI 3yrs+ group was significantly *less* influenced in making job decisions by the perceived needs of "significant others" than was the No VR group.

Subscale *Living Location Preferences* (total score range 4-24) registered a highly significant ($p<.001$) difference in mean total score ranking between the No VRI group (median 18.0; $n = 258$) and the VRI 3 yrs+ group (median 20.0; $n = 87$). These results, plus the small to medium effect size ($r = .26$), suggested that overall the VRI 3yr+ group was more attracted than the No VRI group to bush life and access to wilderness, and not discouraged by climate extreme or low proximity to urban amenity.

The subscale *Clinical Self-containment* (total score range 8-48) produced a highly significant ($p<.001$) difference in rankings of mean total scale scores, between the No VRI group (median 17.0; $n = 254$) and VRI 3yrs+ group (median 19.0; $n = 84$), along with the near medium effect size ($r = .26$). These results indicated that the VRI 3yrs+ group was overall more attracted to work in a clinically autonomous setting, with low felt need for professional supervision.

Subscale *Intercultural Interests* (total score range 5-30) produced a highly significant difference ($p<.001$) between the total score distributions of VRI 3yrs+ (median 24.0; $n = 85$) and the No VRI group (median 22.0; $n = 260$). These results, plus the smaller effect size ($r = .22$), suggested that, compared with the No

VRI group, the VRI 3yrs+ group were mildly more motivated by the prospect of having their intercultural interests and skills developed through their work.

Subscale *Challenge Seeker* (total score range 4 - 24) registered a slightly less but still very significant difference ($p< .002$) in the scale's mean total ranking between the No VRI group (median 16.0; $n = 260$) and the VRI 3yrs+ group (median 17.0; $n = 86$). Together with the small effect size ($r =.16$), these results indicated that the VRI 3yrs+ group was, overall, mildly more motivated than the No VRI group towards a job which offers adventure, challenge and risk.

Subscale *Lifestyle* (total score range 3-18) registered a significant ($p<.004$) difference between the scale's mean total score distributions of the No VRI group (Median 12.0; mean total rank 179.4; $n = 258$) and the VRI 3yrs+ group (Median 12.0; mean total rank 144.9; $n = 83$. While there was no difference between medians, the No VRI group ranked substantially higher in mean rank (179.4) than the VRI 3yrs+ group (144.9) (See Appendix E). This, combined with the small but non-trivial effect size ($r = .15$), indicated a mild overall tendency towards the VRI 3yrs+ group being *less* motivated than the No VRI group to seek lifestyle amenities such as work/leisure balance and a healthy work/living environment. This is in contrast to this scale's lack of significant difference in score distributions between the VR and No VR groups.

Subscale *Personal Demand Preferences* (total score range 5 - 30) was the final subscale to register significant ($p< .007$) difference between the No VRI (median 19.0; $n = 243$) and VRI 3yrs+ group (median 21.0; $n = 86$) in mean total scale score rankings. These figures and the small effect size ($r = .15$) suggested that the VRI 3yrs+ group were mildly more motivated towards work that requires the practitioner to be accessible to service recipients during and after hours, highly

engaged in the host community, and drawn to work in community with unclear (but still ethical) work/social boundaries.

7.2.1 Summary: Subscale responsivity to the four most influential VR variables

To summarise the important findings in the above series of results, Table 7.14 lists the four VR variables that most influenced the 14 subscales' score distributions. These were: Very Remote Indigenous community work experience, 3yrs+ / nil such experience; Very Remote (all kinds) work experience, some/nil; Satisfaction with past VR work (all kinds); and Self-rated Probability of seeking Very Remote work.

Reading across Table 7.14, it is evident that the following three subscale score distributions were the most influenced, by all four variables:

Living Location preferences;
Intercultural interests;
Personal demand preferences.

Relationship imperatives was strongly influenced by both VRI3yrs+ and VR work experience, as was Clinical self-containment, but to a lesser effect size. Challenge seeker was also influenced by these two variables and also by past VR satisfaction. Reading down Table 7.14, it is evident that the following three VR variables were related to the largest range of motivations, listed in decreasing order, with VR Satisfaction the most widely influential:

Past VR work satisfaction;

VRI3yrs+;

VR (all types including VRI community work).

Table 7.14

Effect size by four VR workplace variables including VRI and VR work experience, on 14 subscales

Subscale	Very Remote Indigenous community: VRI3yrs+ / No VRI	VR work experience: Some / None	Past VR work Satisfaction: Very satisfied / Dissatisfied	Probability of seeking VR work: Probable / Extremely Unlikely
Relationship Imperatives	.38	.36		
Living Location	.26	.31	.40	.56
Clinical Self Containment	.26	.24		
Intercultural Interests	.21	.20	.27	.39
Challenge Seeker	.16	.27	.30	
Personal Demand Preferences	.15	.26	.28	.52
Lifestyle	.15			
Clinical Competence			.36	.23
Belonging Needs				
PHC Orientation			.34	
Compassion			.33	
Avoidance Needs			.27	
Spiritual Beliefs		.13		
Financial interests				

Reading Table 7.14 from the bottom up, it is clear that the 3Ms-related motivations (Financial interests, Spiritual beliefs, Avoidance needs and Belonging needs) all showed very little significant response to the four VR variables, and notably, no significant response to the VRI3yrs+ variable at all.

However the results so far illustrate the potential of at least seven subscales to provide mean measure rankings which significantly differ between those practitioners with more than three years' VRI workplace experience and those with no VRI experience, among several other variables of interest. These seven subscales, plus the Clinical Competence subscale which was significantly influenced by Satisfaction with VR work experience, are mutually distinct conceptually and statistically independent, with all inter-correlations less than .5 and all but two less than .4 (Appendix E, Table E2).

The roles of these subscales in addressing RQs 3-5 (Chapter 8) are highly relevant to the study's outcomes. Chapter 8 explores how these subscales' scores can be used to contribute to assessing the likelihood of a practitioner both choosing, then staying in, the VRI community workplace for a total of over three years.

CHAPTER 8: RESULTS 4
PREDICTIVE POTENTIAL OF THE 14 SUBSCALES

8.1 Towards a Predictive Model of Substantial Very Remote Indigenous Community Work Experience

In this chapter, the potential of the subscale scores to contribute to predicting important VRI community work related variables is assessed in addressing RQ 3, concerning the two practitioner groups VRI community work (more than 3years) and No VRI community work. Then in addressing RQ 4, the possibly predictive subscales identified in RQ 3 are further appraised, by controlling for the potentially confounding influences of four demographic variables. Finally, RQ 5 was aimed to optimise the predictive model for VRI 3yrs+ work experience, using the subscales identified in RQ 4, among other variables. Whether the retained subscales' predictive capabilities were specific to the VRI community variable was also assessed. Logistic regression was used throughout, for reasons outlined in Method. Its capacity to produce predictive or likelihood parameters was a major reason.

In pursuing the development of a tool to help predict substantial Very Remote Indigenous community (VRI) work experience, and therefore overall retention, RQ3 was updated as follows:

Which of the 14 work motivation subscales provide significant estimates of the likelihood of a health practitioner having over three years' work experience in the Very Remote Indigenous community workplace (VRI 3yrs+)?

Binary logistic regression was used to assess each of the 14 subscales' capacities to estimate the likelihood of a respondent belonging to the VRI 3yrs+ group, rather than the No VRI group. The assumptions made for logistic

regression were met, using the method of appraisal described in Chapter 4:

Method. The collinearity requirements were met as shown in Appendix F, Table

F.1. The 14 regression analyses involved entering each subscale in turn as the

independent variable, with the VRI variable as the dependent variable.

Table 8.1
Logistic Regression Summary: Each of 14 Subscales with the dependent variable
VRI3yrs+/No VRI community work experience

Subscale	Wald	Odds Ratio (OR)	95% Confidence Interval	p
Living location preferences	21.06	1.20	1.11-1.30	**.001**
Clinical self containment	19.69	1.12	1.07-1.18	**.001**
Challenge seeker	8.23	1.12	1.04-1.20	**.004**
Intercultural interests	11.65	1.11	1.04-1.17	**.001**
Personal demand preferences	6.70	1.08	1.02-1.14	**.010**
Relationship imperatives	41.43	.75	.69 -.82	**.001**
Lifestyle	8.49	.80	.69 -.93	**.004**
Compassion	4.19	.96	.92 - 1.00	**.041**
Belonging needs	3.43	.93	.87 - 1.00	.064
Spiritual Beliefs	.93	.94	.87- .1.01	.087
Financial interests	1.60	.98	.95-1.01	.205
PHC orientation	.00	1.00	.96 - 1.04	.987
Avoidance needs	.72	1.03	.96-1.10	.397
Clinical competence	2.37	1.08	.98-1.18	.124

The first eight subscales listed in Table 8.1 produced significant Wald and Odds Ratio (OR) figures, with the first five above 1.00. For every unit increase in each of these scales' total scores, the likelihood of the practitioner belonging to the VRI 3yrs+ group, compared with the No VRI group, increased by a factor equivalent to the OR for that subscale.

The last three of the top eight subscales in Table 8.1 produced ORs less than 1.00, indicating that the likelihood of belonging to the VRI 3yrs+ group would *decrease* for every point of increase in total score. For example, for every point increase in *Relationship Imperatives'* total score (range 3 - 18), the likelihood of the respondent belonging to the VRI 3yrs+ group is estimated to decrease by a factor of .75 (CI: .69 -.82).

8.2   Controlling for Influence by Four Demographic Variables on Subscales' Predictive Performance

The next step was to ensure that the eight retained subscales' predictive capabilities were not confounded by their relationships with various demographic variables, such as age and gender. This is the focus of RQ 4, updated as follows:

Do the eight predictive subscales identified in Section 8.1 remain significantly predictive when controlling for the possible influence of several demographic variables?

To answer this question, data from relevant questions in the HPMS were used, as listed in Table 8.2.: Age, Gender, Partner status and Parent status. It was hypothesized that elements of these variables would influence work motivations concerning the very remote Indigenous workplace. Examples included: the educational needs of school aged children, relating to age and parental status; difficulty for a partner gaining suitable employment, relating to partner status; and

social and other age related needs or wants of the practitioner in the very remote Indigenous community setting. The marked differences in sample number within each pair of variables, for example there being twice as many females as males in the VRI3yrs+ work experience sample, suggested that these variables could influence motivations concerning very remote Indigenous work.

With the exception of Age, the variables listed in Table 8.2 were used in the same form in which they were collected in the HPMS. The VRI3yrs+ practitioners' age distribution was skewed to the over 50 years range, so to achieve satisfactory numbers and balance, the two age categories chosen for this variable were 50 years and under and above 50 years.

Table 8.2
Demographic Variable Sample Numbers with the dependent variable VRI

Variable	Category	n	No VRI *n*	%	VRI 3yrs+ *n*	%
Gender	Female	310	245	79.0	65	21.0
	Male	89	56	62.9	33	37.1
	Total	399	301		98	
Age	≤50y	229	190	83.0	39	17.0
	>50y	170	111	65.3	59	34.7
	Total	399	301		98	
Partner Status	Partnered	289	225	77.9	64	22.1
	No Partner	110	76	69.1	34	30.9
	Total	399	301		98	
Parent Status	Children (any age)	240	174	72.5	66	27.5
	No children	157	125	79.6	32	20.4
	Total	397	299		98	

To control for possible confounding influences by these four demographic variables, each subscale was analysed with binary logistic regression, one at a time, with all four demographic variables as the independent variables, with VRI work experience again the dependent variable. The assumptions for this regression were all satisfied, using the criteria described in Chapter 4: Method. The results of these regressions are shown in Table 8.3. Seven of the eight subscales maintained significant ORs. The OR for *Compassion* became non-significant, at 0.98, meaning that every unit increase in Compassion score would reduce the likelihood of the respondent being a member of the VRI 3yrs+ group by a factor of .98, or 1.0, meaning effectively no influence. Consequently, *Compassion* was omitted from further models to be explored.

Table 8.3
Predicting VRI3yrs+ Work Experience while controlling foe Age, Gender, Partner Status and Parent Status

Subscale	Wald	Odds Ratio	95% Confidence Interval	p
Living location preferences	19.69	1.20	1.11-1.31	**.001**
Clinical self containment	13.928	1.11	1.05-1.17	**.001**
Challenge seeker	5.32	1.10	1.01-1.18	**.021**
Intercultural interests	13.23	1.12	1.05 – 1.19	**.001**
Personal Demand Preferences	4.06	1.06	1.00-1.13	**.044**
Relationship Imperatives	34.35	.74	.67-.82	**.001**
Lifestyle	6.12	.82	.71-.96	**.013**
Compassion	1.29	.98	.93 - 1.02	.256

Significant findings ($p < .05$) in **bold**

The answer to RQ 4 is therefore that seven of the eight subscales remained predictive of VRI3yrs+ membership, when controlling for the four demographic variables.

8.3   Towards an Optimum Model for VRI 3yrs+ Prediction

The final step in this analysis involved addressing the updated RQ5, which asked:

What is an optimum model for predicting that a practitioner will have more than three years' Very Remote Indigenous community work experience?

To address this question, a further set of variables that were potentially confounding of VRI work experience prediction were identified from the HPMS dataset. They are listed in Table 8.4.

Table 8.4
Variables of Potential Influence in VRI3yrs+ Prediction

Variable	Category	Total *n*	No VRI: *n*	%	VRI 3yrs+: *n*	%
Professional Category	Med/AHP/other	213	185	86.9	28	13.1
	Registered nurse	186	116	62.4	70	37.6
Early Rural/ remote Exposure	Nil	204	155	76.0	49	24.0
	Significant	195	146	74.9	49	25.1
Country of basic training	Other than Australia	60	44	73.3	16	26.7
	Australia	339	257	75.8	82	24.2
Gender	Female	309	245	79.3	64	20.7
	Male	90	56	62.2	34	37.8
Age	≤50 yrs	229	191	83.4	38	16.6
	>50 yrs	170	112	65.9	58	34.1

Partner status	Partnered	289	225	77.9	64	22.1
	No partner	110	76	69.1	34	30.9
Parent status	Children	240	174	72.5	66	27.5
	No Children	157	125	79.6	32	20.4

The choice of the three professional history variables of interest was based on the evidence referred to in the literature review, that early rural exposure may predispose towards choosing and staying in the very remote workplace; and also the marked difference in sample numbers between the VRI3yrs+ categories and the No VRI categories (Profession; Country of basic training). Several variables were not included in this procedure due to their lack of applicability to the majority of the No VRI sample, such as VR job satisfaction and Preferred location of living (while working in a VR location).

The variables Profession, Early rural/remote experience and Country of basic training were entered along with the four demographic variables into a binary logistic regression, with the dependent variable VRI work experience. Each of the seven subscales was then added to these seven independent variables, one at a time, in seven consecutive analyses. This indicated the level of significance and robustness of each subscale's predictive capabilities, while controlling for the seven categorical variables, providing the results in Table 8.5. This shows five subscales continued to predict VRI3yrs+ very significantly. *Personal demand preferences* was no longer significant and was omitted from the rest of this analysis. *Challenge seeker* was marginally significant ($p<.057$). It was retained for the next step in this analysis based on its relatively robust performance in addressing RQs 1-4; and the related supportive research findings such as those of Eley et al. (2009), concerning harm avoidance and choice of work place location.

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Table 8.5

Summary: Predictive Capability of VRI3yrs+ work experience of seven subscales while controlling for seven categorical Variables of Interest

Subscale	Wald	Odds Ratio	95% Confidence Interval	p
Living location preferences	15.53	1.19	1.09-1.29	**.001**
Clinical self containment	14.41	1.12	1.06-1.19	**.001**
Intercultural interests	10.85	1.11	1.04-1.18	**.001**
Challenge seeker	3.62	1.08	1.00-1.18	.057
Personal Demand Preferences	2.13	1.05	.99-1.11	.144
Relationship Imperatives	26.88	.76	.68-.84	**.001**
Lifestyle	6.02	.82	.70-.96	**.014**

*Significant findings (p<.05) in **bold***

The six significant predictive subscales so retained were then entered as independent variables, along with the seven categorical variables, in a binary logistic regression with VRI work experience as the dependent variable. As evident in Table 8.6, this 13-variable model produced seven non-significant predictive variables and the following six variables that were significantly predictive of VRI work experience:

- Gender;

- Profession;

- *Relationship imperatives;*

- *Intercultural interests;*

- *Clinical self-containment;*

- *Lifestyle preferences*.

Table 8.6

Predicting VRI work experience: a 13 variable model

Independent Variable	Wald	Odds Ratio (OR)	95% C.I.for OR	*p*
Relationship imperatives	**10.51**	**.81**	**.71 - .92**	**.001**
Intercultural interests	**12.38**	**1.17**	**1.07-1.28**	**.001**
Lifestyle	**5.90**	**.77**	**.62 - .95**	**.015**
Clinical self-contain-ment	**4.70**	**1.09**	**1.01 - 1.18**	**.030**
Living Location preferences	1.07	1.06	.95 - 1.18	.300
Challenge seeker	.00	1.00	.90 - 1.11	.995
Gender	**8.70**	**3.25**	**1.49 - 7.10**	**.003**
Profession	**13.90**	**4.12**	**1.96 - 8.66**	**.001**
Age	.66	1.35	.66 - 2.77	.415
Children	.14	1.15	.54 - 2.48	.713
Partner	.01	.97	.44 - 2.14	.945
Country of basic training	.01	.95	.38 - 2.40	.911
Early rural experience	2.35	1.75	.86 - 3.60	.125
Constant	3.15	.03		.076

Significant figures (*p*<.05) in **Bold**

These six variables, including four subscales, were then entered into the model which produced the results summarised in Table 8.7. All six variables provided significant estimates of likelihood with regard to VRI work experience. This model was statistically significant: χ^2 (*df*=6, *n* = 323) = 101.16, *p* <.001, indicating that it could distinguish between practitioners belonging to the two VRI categories. It explained between 26.9% (Cox and Snell R square) and 40.2%

(Nagelkerke R Square) of the variance of VRI work experience; it produced a

non-significant ($p <.69$) Hosmer and Lemeshow test result, supporting its validity.

The model correctly classified 83.0% of respondents, improving on the initial

predicted rate of 75.9% and those of all previously trialled regression models,

except the 13-variable trial (84.0%), which was excessively complex.

Table 8.7
*A six variable model for estimating Likelihoods of VRI community work
experience*

Variable	Wald	OR	95% C.I.for OR	p
Relationship Imperatives	18.46	.80	.72 - .88	.001
Lifestyle	5.06	.80	.66 - .97	.024
Intercultural interests	16.87	1.17	1.09 – 1.27	.001
Clinical self-containment	5.50	1.09	1.01 – 1.16	.019
Gender	9.71	3.26	1.55 – 6.84	.002
Profession	17.14	4.13	2.11 – 8.09	.001
Constant	1.69	.10		.193

Of the four subscales, both *Relationship Imperatives* and *Lifestyle* estimated

the likelihood of belonging to the VRI3yrs+ group would decrease by a factor of

.80 for every unit increase in total score. Conversely, they estimated that the

likelihood of a practitioner belonging to the No VRI group increased by a factor

of 1.25 (1/.80) for every unit of score increase in each subscale. The subscales

Intercultural interests and *Clinical self-containment* estimated likelihood of

belonging to the VRI 3yrs+ group, rather than the No VRI group, would increase

by 1.17 and 1.09 respectively, for every unit of total score increase.

The model also estimated that the respondent being male increased the likelihood by 3.26 times that he would belong to the VRI 3yrs+ group, rather than the No VRI group. Lastly, the model estimated that being a nurse quadrupled the likelihood of the respondent belonging to the VRI 3yrs+ group, rather than the No VRI group.

Given the strongly significant predictive result for all six variables, this model is recommended as the optimum model to explore and develop in future research. Further comment on possibilities is made in Chapter 9: Discussion.

CHAPTER 9: DISCUSSION

This Discussion is presented in six sections as follows:

9.1 Overview

9.2 What the results have delivered

9.3 Future research and possible applications

9.4 Limitations of the study

9.5 Policy Implications

9.6 Conclusions

9.1 Overview

The core goals of this study were to: a) establish the *nature of the work motivations* of the health practitioner, particularly as they relate to *very remote Indigenous community* (VRI) workplace choices; b) to produce health practitioner *motivation measuring scales,* with which to: c) estimate work motivation *influence on retention* in the very remote Indigenous community workplace, among other variables of interest. The ultimate aim was to produce strategies that could enhance both recruitment and retention of health practitioners in the Australian very remote health industry.

The hypotheses underpinning these goals were : a) practitioner work motivations are both identifiable and measurable; b) career choice of VRI community work is driven by at least some health practitioner work motivations which are measurably different from those that drive less remote work choices; c) some of these motivations will influence total length of stay in the VRI workplace.

9.2   What the Results have delivered

9.2.1 The 14 health practitioner work motivation subscales.

The constellation of 14 work motivation subscales was identified in the Results chapters, along with the ways in which they related to both the very remote Indigenous community workplace (VRI3yrs+) and all very remote workplaces (VR). While not of course all inclusive, the 14 subscales cover a wide range of possible health practitioner work motivations. They also fit the essential needs motivating framework referred to throughout this study, as follows:

Autonomy: *Clinical self-containment.*

Competence: *Intercultural interests; Clinical competence; PHC orientation; Challenge seeker.*

Relatedness: *Relationship imperatives; Belonging needs; Avoidance needs; Personal demand preferences.*

Other/Intrinsic: *Compassion; Spiritual.*

Other/Extrinsic: *Lifestyle; Living location preferences; Financial interests.*

These subscales measured many motivational factors that were expected to emerge across the full range of remoteness of workplace, based on the literature review findings and panel members' experience. Their validity appraisals have been positive so far, concerning their content, construct and predictive validities. While each scale was robust under trial with a second EFA procedure, confirmatory factor analysis of the subscales across suitable HP samples could add to refining the total subscale set. The results of the subscales' development

and their applications described in Chapters 7 and 8 suggest that such further development will be worthwhile.

9.2.2 Very Remote Health Practitioner Motivations (VRHPM).

Relationships of significant influence were identified between the same seven of 14 motivation measures and substantial retention in the very remote Indigenous community workplace, using two different forms of analysis (MWU, linear logistic regression).This lends strong support for their validities and for being further explored. This set included six subscales also significantly influenced by the VR work experience variable and four subscales significantly influenced by VR work satisfaction. *Clinical competence* scores were not significantly influenced by either VR or VRI work experience as such, and were not predictive of substantial VRI3yrs+ work experience, but were influenced by both VR Work Satisfaction and Probability of seeking VR work. This, along with its CPE and clinical work content, supports its addition to the seven subscales, to form the 8-subscale, 33-item *Very Remote Health Practitioner Motivations (VRHPM) subscale set,* as follows (with number of items per subscale in brackets):

Living location preferences (4);

Clinical self-containment (6);

Intercultural interests (5);

Challenge seeker (4);

Personal demand preferences (5);

Clinical competence (3);

Relationship Imperatives (3);

Lifestyle (3).

A practitioner who scored highly across all these scales, except *Relationship Imperatives* and *Lifestyle*, could be expected to be motivated by the prospects of:

- Working and living in remote and very remote locations, near wilderness, sometimes in climatic extreme (*Living location preferences);*

- Working with low clinical supervision and high professional autonomy (*Clinical self containment)*;

- Developing skills and knowledge relevant to working with Indigenous people, so to help "Closing the Gap" between Indigenous and non-Indigenous health status (*Intercultural interests)*;

- Combining work with adventure, challenge and frequent changes in a job (*Challenge seeker)*;

- Working with unclear before/after-hours boundaries, flexible work hours, high demand for personal availability, perhaps where English is the second language (*Personal demand preferences)*; and

- High clinical demand, with the opportunity to develop advanced clinical skills (*Clinical competence).*

A practitioner could also be expected to be motivated towards, or at least not deterred from, VRI community work by having low scores on:

- *Lifestyle,* conveying a low sense of need for a comfortable work/leisure balance, "healthy" lifestyle and an inspiring living environment; and

- *Relationship imperatives,* conveying low felt need to cater for significant others' needs when choosing a job.

This eight subscale set provides a profile relevant to differentiating between those prospective practitioners who are, and are not, likely to choose, then stay in,

VRI community work for a substantial time. Further analysis and validating in various workplace settings is needed to produce a flexible, multi-purpose composite set of subscales which produce profiles useful in management and research. The properties of the eight subscales now need to be compiled into a user's manual that outlines the necessary descriptive and other statistics, to support the conducting of the field research necessary to exploit the potential value of this scale in the very remote health industry.

The VRHPM set could be used with, for example, the Remote Area Nursing Stress Scale or RANSS (Opie et al., 2013), to research the relationships between the VRI occupational health factors, practitioner adjustment/stress levels, early and current work motivations and retention in the VRI community work setting.

The VRHPM subscales reflect the social cognitive career theory (SCCT) of Lent et al (2000), with its framework of sense of self-efficacy (clinical self-containment), trait related influences (challenger seeking; personal demand preferences) and expectancies (to learn more about intercultural matters; develop clinical competencies). These three facets of work motivation were proposed to come together to mobilise job choice intentions in SCCT. The VRHPM subscale set provides measures relevant to such intentions, especially but not only with regard to VRI community work choices.

The model developed to predict the likelihood of a practitioner choosing and staying in the very remote Indigenous community workplace for more than three years involved four of the VRHPM subscales, along with the two variables gender and profession. In doing so, the three core goals of the study were achieved to a substantial degree.

9.2.3   Some notable features of the VRHPM subscales.

The subscale *Living location preferences* was the most sensitive scale to four key Very Remote variables, including VRI3yrs+, supporting its construct and criterion validities. Its responsiveness to the self rated "Probability of seeking VR work" variable was especially strong. Therefore, as part of the VRHPM set, this subscale has potential for helping identify early the potentially compatible and contemplating candidate for later VR/VRI work, and the possible high-risk appointee to such work, who scores low on this subscale.

Relationship imperatives proved the most sensitive subscale to both VRI and VR work experience groups, suggesting that the higher the need to consider significant others' needs in job choice, the more likely the practitioner would have no VR experience of any sort. As part of the VRHPM set, the response to this subscale can provide a guide to help prepare the prospective candidate for the VRI/VR work and living environment, when significant others are involved.

Clinical self-containment and *Intercultural interests* were the next most significantly responsive subscales to having more than three years' VRI work experience and only slightly less so to having some or no VR work experience. Intercultural interests is very remote Indigenous community specific and preference for clinical autonomy at work will be helpful in all VR work, given its potentially stressful professional isolation characteristics (Opie et al., 2013). The two VR variables' similar ratings on these two subscales is explained by first, the fact that the majority of VR practitioners also had VRI community work experience, and second, many non-Indigenous community VR workplaces also

will have involved intercultural matters and required lone and responsible clinical work.

Both *Challenge seeker* and *Personal demand preferences* measures differed more between the VR and No VR groups than those between VRI3yrs+ and No VRI3yrs+ groups. Significant *Challenge seeker* motivational influence was expected to be more marked with VRI community work. The *Challenge seeker* theme inversely reflected the "Harm Avoider" trait measure found to be significantly lower (less cautious, more risk tolerant) in medical practitioners who stayed "rural", compared with those planning to return to, or were living in, major cities (Eley et al., 2009). That C*hallenge seeker* motivation scoring differed more between the VR and No VR groups than the VRI3yrs+ and No VRI groups, could be explained by the fact that VR variable included any length of work experience in any VR (including VRI) workplace, so not limited to the VRI3yrs+ more than three years. The higher challenge seeker score perhaps biased the practitioner towards a tendency to shorter tenure, to seek more challenge elsewhere, than the more than three years of the VRI3yrs+ group. It is also possible that the level and constancy of challenge in the VRI community workplace over more than three years partially extinguishes the VRI practitioner's challenge-seeking appetite. These possibilities need testing. If supported, they would have important implications for best practice management of the VRI workforce.

Based on literature review findings (Lenthall et al., 2009), it was expected that *Personal demand preferences* would be significantly more sensitive to the VRI3yrs+ variable than to the VR variable, noting that a high score on this subscale conveys being ready for and attracted to high personal exposure to community members' lives, including extended on-call. The contrary finding

possibly reflected the effects of the continuous high exposure to demand for high availability faced by the VRI3yrs+ practitioner, which could reduce the attraction to such exposure. The prevalent risk of "burnout" (Lenthall et al 2011; Opie et al 2012; Campbell et al 2012) among very remote Indigenous community practitioners supports this explanation.

VRI3yrs+ community work experience was the only variable to significantly influence *Lifestyle* scores, to a small, inverse but significant effect size. A low score on this this subscale conveys low interest in work/leisure balance and in having an inspiring work environment. The VRI community work environment would be unlikely to be able to offer good work/leisure balance as an incentive, but could offer an inspiring environment for some.

The VR Work Satisfaction variable produced significant influence on eight subscales, sharing four with the VRHPM eight. The Extremely Satisfied VR practitioner group ranked significantly higher in mean score than the Dissatisfied group on five subscales: *Living location preferences; Challenge seeker; Clinical competence; PHC Orientation; Compassion* and *Avoidance needs*. The latter four subscales' links with VR job satisfaction suggest that the extremely satisfied VR practitioner, compared with the dissatisfied VR practitioner, is more likely to be motivated by opportunity to enhance clinical skills, to work within the PHC model of care, to maintain compassion and to feel low need to avoid life issues in the less remote setting.

This raised the possibility that these five motivations could all influence VR and VRI community retention length when moderated by satisfaction, given the empirically demonstrated link between work satisfaction and VR retention (e.g.

Manahan 2009). This possibility deserves further research, as noted in Section 9.4.

9.2.4 Some unexpected findings.

Continuing Professional Education

It was expected that a stand-alone subscale would emerge which *directly* tapped continuing professional education (CPE). Rather than all clustering into one component, CPE related items emerged in several components, and so eventually in several subscales. These included *Clinical competence, Career management* and *Financial Interests*. This possibly reflected the mixed findings in the literature review concerning the strength of CPE to motivate practitioners to seek very remote work (Humphreys et al., 2007). The spread of subscales that included CPE related items was also consistent with the recommendation to package CPE related incentives with other incentives, to provide a multi-pronged motivating package (Humphreys, Wakerman, Pashen et al., 2009). However the lack of a stand-alone CPE subscale does suggest that CPE was not a singularly dominant motivation for those in the HPMS sample. This also reflects Garnett et al.'s (2008) finding that, when access to CPE was specifically cited as a preliminary reason to seek VR work by a practitioner, it was related to shorter subsequent retention span.

Influence of early educational exposure on remote/very remote motivations

The relatively weak influence that the variable Early Rural/Bush learning experience (months or years; or none) had on VR experience of any kind countered the apparently extensive evidence that such early experience positively stimulates later motivations to seek VR work (Hudson & May, 2015; Williamson,

Wilson, Mckechnie, & Ross, 2012). The variable performed weakly, producing only two significant but small effect sizes: *Living location preferences* (.17) and *Belonging needs* (.10). This suggested that early rural/bush experience could induce a small tendency to prefer later bush-based living and a very small need to seek work offering a sense of belonging and local recognition. This weak finding may be explained by, for instance, the HPMS item's phrasing, which asked: "In your schooling, university, internship and/or other formal training placement years, did you spend significant total time (months or years) in locations you consider 'rural' or 'in the bush'?" The relevant item in the HPMS came just before respondents had been schooled in using the terms "regional", "remote" and "very remote", so the common parlance terms "rural" and "bush" were used instead. A total of 262 (49.1%) VR work experienced practitioners reported such experience. It may be that there are motivations influenced by this variable that are not represented in the 14 subscales. It could also be that the nature of early exposure, in terms of remoteness, bears specifically on the nature of later preference for the level of remoteness of workplace exposed to. For instance, early regional exposure might develop later motivations for regional, but not remote or very remote, work. See Section 9.3ix) for comment on future research. The main lesson from this item is that the terms "rural" and "bush" are too non-specific to allow strong conclusions to be formed.

Lifestyle preferences and VR motivations

The low association between *Lifestyle* and three of four VR variables, including VR work experience, was unexpected, given the substantial differences in all kinds of VR living, compared with those in less remote. This subscale taps attraction to comfortable work/leisure balance, "healthy" lifestyle, and an

inspiring environment. The VRI3yrs+ practitioner group was significantly less attracted by these features than the No VRI community work experience group. While the effect was not large, the subscale played an important role in the predictive formula for substantial VRI community workplace retention, as discussed in Section 9.2.5.

The 3Ms

The Results did not produce any significant support for the 3Ms motivational construct with regard to substantial VRI community work experience. Four of the 14 subscales measure motivations conceptually close to the 3 Ms three motivational constructs: *Spiritual beliefs (Missionary), Avoidance needs* and *Belonging needs (Misfit) and Financial interests (Mercenary).* Notably, none of these emerged in the VRHPM set of eight.

Spiritual beliefs was influenced significantly but weakly by VR/No VR work experience, and not at all by VRI3yrs+ community work experience (or any of the other VR related variables tested). The weak influence was in the direction not expected: the No VR work experience group ranked mildly higher in *Spiritual beliefs* than the VR work experience group. This was somewhat counter to the 3Ms "Missionary" construct which would associate both the VRI and VR experienced practitioner with stronger spiritual beliefs than the practitioner with no such experience. This finding reflects the marked reducing of involvement of religion based organisations in delivering very remote health services over the last five decades.

Avoidance needs was influenced by VR work satisfaction, but with no significant influence by VR or VRI community work experience. This suggested that VR and VRI work experienced practitioners do not feel a greater need to

escape uncomfortable previous living or work places compared with those with no VR / VRI experience, as is implied by the 3Ms "Misfit" construct.

Belonging needs, the other subscale with some "need to find fit" implications, registered no significant influence by any of the VR variables in the study. This suggested the felt need to find a place to feel belonging, fit and familiarity, was either not a significantly influencing motivating factor in choice of workplace remoteness or that it was equally important across all the variables' comparison groups, and consequently produced no significant differences.

Financial interests also did not register significant influence by any of the four VR variables. This could mean that money matters were of no consequence to any of the groups represented in each variable. More probably, there was little difference in financial interests between the various groups analysed. Either way, as with those findings above, it did not support the 3Ms "Mercenary" construct as being a significant motivator that distinguished a significant proportion of VR or VRI practitioners from others. It is however noted in the research suggestions below that comparing the three categories of health professional on *Financial interests* could be fruitful.

9.2.5 Predicting substantial VRI community work experience.

In Chapter 8 the controlling for possible confounding of influence of the eight subscales with predictive potential, led to the model for estimating the global likelihood of having more than three years' VRI work experience; see Figure 9.1 below. The above eight subscales shared seven in common with the VRHPM set of eight. The resultant model is a good example of how the subscales can contribute across a range of practical applications. Its production has met a

core goal of this study, namely that the likelihood estimates it produces enable a global predictive estimate to be made of a respondent's likelihood of having, or being compatible with, more than three years of VRI community work experience, compared with none at all.

The predictive model is underpinned by the ORs estimated for each of the four subscales involved. Interpreting the actual meaning of the OR for a given subscale needs care, as noted in Chapter 8. The majority of significant ORs produced for the subscales appeared small, ranging from 0.75 to 1.30. However, the likelihood of a respondent belonging to one category or the other (such as VRI3yrs+ or No VRI) can change in a compounding way, by a multiple of the OR figure, for every increase in the unit score of the scale measure (Tabachnick & Fidell, 2013). For example, for the maximum 30 on *Intercultural interests* (score range 5-30; 26 score points inclusive from 5 to 30), the OR of 1.17 produces the likelihood rating of that respondent belonging to the VRI3yrs+ group of 1.17^{26} or 59.3 times greater than that of belonging to the No VRI group, all other factors staying constant.

If the same practitioner scored 10 on *Relationship Imperatives* (10 being the *eighth* score in the possible score range 3 -18), this would estimate the likelihood of the respondent being in the VRI 3yrs+ group, as compared with the No VRI group, as $.80^{8}$, or .17 times *less* likely, other variables remaining constant. Conversely, the estimated likelihood of the respondent belonging to the No VRI group would increase by a factor of 1/.80 or 1.25 times, for every unit increase in score. Such figures would suggest the practitioner might have conflicting motivational interests with regard to VRI work and require further assessment.

An OR of 1.00 leaves the likelihood stable across the full range of a scale's scores, since each unit increase above the base score would earn a multiple of 1.00. Yet the above figures demonstrate that the likelihood deriving from an OR with even a small difference from 1.00, can increase or decrease rapidly in a compounding way.

9.2.6 The VRI 3yrs+ predictive model in practice.

The model for allocating respondents to their correct VRI category (VRI3yrs+; No VRI) produced a set of six significant likelihood estimates (see Figure 9.1), one for each variable in the model. Each of these estimates needed to be individually calculated, then considered together in making a global estimate of likelihood of the respondent belonging to the VRI3yrs+ work experience category. Figure 9.1 conveys how, for example, a male nurse with high total scale scores on *Intercultural interests a*nd C*linical self-containment,* and low total scores on *Lifestyle* and *Relationships imperatives,* will have a very much higher likelihood of belonging to, or being compatible with, the VRI3yrs+ group, compared with the No VRI work experience group. This likelihood can be compared, for example, with a female allied health or medical practitioner who scores in the opposite extremes on some or all of the four scales, who would more likely belong to, or be more compatible with, the No VRI community group.

Of the six variables in the model, the higher likelihood of male gender being in the VRI3yrs+ group was the least expected. This reflected the statistic that the 33 (33.7%) proportionate representation by males in the VRI 3yrs+ sample was substantially higher than that in the No VRI group of 57 (18.9%) and, to a lesser degree, in the total HPMS sample of 123 (29.0%) males.

A simple way to use the model in Figure 9.1 is to tick whichever boxes in the two "Score rating" (second and fourth) columns apply to a respondent's subscale

and other variable scores. The number of ticks in each column give a ready visual

guide to the likelihood of the respondent being a member, or potential member, of

each VRI category.
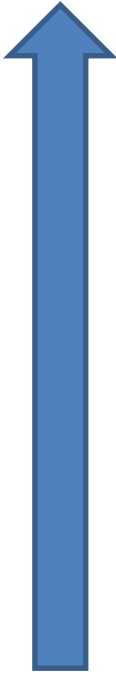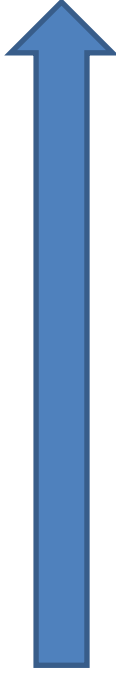
Likelihood of substantial VRI work experience (VRI3yrs+)	Score rating that increases likelihood of having 3years+ VRI retention	Predictive variables: Subscales, Gender and Profession OR	Score rating that increases likelihood of having No VRI work experience	Likelihood of No VRI work experience
	LOW	RELATIONSHIP IMPERATIVES .80	HIGH	
	LOW	LIFESTYLE .80	HIGH	
	HIGH	INTER-CULTURAL INTERESTS 1.17	LOW	
	HIGH	CLINICAL SELF CONTAINMENT 1.09	LOW	
	MALE	GENDER 3.26	FEMALE	
	NURSE	PROFESSION 4.13	MEDICAL/AHP/ OTHER	

Figure 9.1 Predicting VRI work experience

The essential needs framework referred to throughout this study, also applied

in this model, as follows:

Autonomy*:   Clinical self-containment;*

Competence*:   Intercultural interests;*

Relatedness*:   Relationship imperatives*;

Other /extrinsic: *Lifestyle*

9.2.7 Motivational differences between VR and less remote contexts.

The 14 health practitioner subscales represent a constellation of motivations that can potentially influence work choice and retention across the remoteness range. In the less than VR work environment, work motivations are usually highly centred on the expected and actual demands of the job *per se;* motivations concerning after-hours possibilities can be met independently of the workplace. In contrast, in the majority of VR jobs and especially the VRI live-in-community job, the practitioner enters into a job-lifestyle total package. This will usually involve the "24/7" demands of living and working in the VRI community, often with limited physical resources to meet the many demands (Lenthall et al., 2009), so heavily drawing on the personal resources of the practitioner. The prospective VRI practitioner's work and lifestyle motivations and related preferences will therefore be very relevant. Accordingly, they could be time efficiently assessed in the recruitment stage, using relevant subscales. Motivations will need to be resilient as will the applicant overall, since familiar support networks and convenient opportunities to de-brief and de-role, cannot be assumed in the very remote Indigenous community work setting. Such opportunities are taken for granted in the city, regional and even remote workplaces.

This essential difference between the VR and less than VR workplace is one reason the practitioner who thrives in the VR setting will need to enjoy being autonomous and rate highly on *Clinical self-containment* (see Figure 9.1). However, this attraction to the autonomous work setting may partly explain the often reported tensions (Opie, Dollard, et al., 2010) between the VR practitioner and in-town line management, in addition to the more obvious practical complications inherent in that distance-based relationship. The autonomous employee will usually prefer minimum oversight and is likely to feel some

ambivalence about following directions perceived as driven by in-town interests. However, in the VRI community workplace, when distant management is occasionally called upon by the VRI practitioner, an urgent response will often be sought, risking workplace tension if it is not forthcoming promptly.

9.2.8 The contribution of the results to subscale validities.

Construct validity:

Construct validity includes several subclasses of validity, including "known groups" and convergent and discriminant validity (Pallant, 2010). It is assessed progressively as research evidence builds. By assessing the significance of differences between each VR variable's two "known groups" (of difference in remoteness of workplace), support for the subscales' construct validities concerning VR practitioner motivations could be added to existing evidence. The latter included strong links between the large majority of subscale scores and three variables which relate to work motivations: Job Engagement, Job Satisfaction and Person-job Fit (Chapter 6; Section 6.2.3)

Of the 14 subscales, 13 responded with at least one significant difference between known groups on at least one VR related variable; four subscales were significantly influenced by three of four VR variables; eight of the 14 subscales registered significant influence by the VR Work Satisfaction variable; and seven of those eight subscales were significantly influenced by the VRI community work experience variable. These findings provide additional evidence for the construct validity of 13 of the 14 subscales.

The only subscale for which there was not at least one significant difference in the MWU analyses was *Financial interests.* This suggested that *Financial interests* scores were similar across remoteness levels and related variables and

does not contribute evidence for this subscale's construct validity. However it is very unlikely that this subscale lacks adequate construct validity *per se,* given its highly tangible underlying construct and unambiguous focus, with items spanning a broad range of financial motivators, along with its high internal reliability rating.

Predictive validities:

The model developed in Chapters 8 was intended to be predictive of substantial VRI work experience, involving the four subscales: *Relationship imperatives, Intercultural interests, Clinical self-containment* and *Lifestyle* subscales. In building it, significant and resilient predictive indicators for more than three years' VRI work experience were also produced for *Challenge seeker, Personal demand preferences,* and *Living location preferences*. This provided strong evidence for the predictive validity of the four subscales that comprised the final model, and some evidence for the predictive validity of the latter three subscales above.

In summary, the results provided important validating evidence for the majority of the 14 subscales, and no evidence that would warrant rejecting any one subscale on the basis of inadequate validity.

9.3   Future research and possible applications

9.3.1 Some immediate possibilities

These results lead to the following possible future research:

i)   Further scale confirmatory analysis; this will require a new set of scale score data.

ii) Further developing the eight subscale Very Remote Health Practitioner Motivation (VRHPM) Scale, aimed at the very remote context, along with perhaps other specific-purpose sets of subscales;

iii) Testing the predictive model for VRI retention: This will require a longitudinal study, spanning at least three years, correlating model scores obtained at recruitment with later retention outcomes.

iv) Researching various other industry applications, including developing further predictive models for less than very remote workplace locations, and identifying links between subscale scores and a range of workplace outcomes, such as job engagement, satisfaction and fit, using both cross sectional and longitudinal research.

v) Identifying the links between practitioner motivations and for example, the efficacies of various extrinsic incentives commonly offered, such as extra money and CPE, on enhancing retention at various levels of remoteness.

vi) Exploring the influence of both anonymity and obvious score-based reward outcomes on "faking" and image management trends, in motivation assessment.

vii) Further examining differences between the nurse, medical and allied health practitioner professions, with regard to various motivations, such as *Financial interests.* This motivation could significantly differ between the VRI and No VRI community practitioner groups between professions, where one profession is proportionately better monetarily rewarded for VRI work than non VRI work.

viii) Testing the hypothesis that remoteness of workplace moderates the influence of trait-related work motivations in that workplace, based on evidence (Barrick & Mount, 1993) that the level of autonomy in a workplace moderates the behavioural expression of the worker's personality traits. Could trait-related motivations, such as clinical self-

containment and compassion, be more influential, or overtly acted out with increasing remoteness, controlling for other factors? If so, this would add value to the assessing of motivations before a practitioner's appointment to to any VR workplace.

ix) Further exploring the links between early regional, remote and/or very remote exposure and later VR and VR Indigenous community work motivations, and associated recruitment and retention patterns. This is important in the context of current national health practitioner education policies.

x) Trialling the use of motivation subscale based information, such as the nature of the more predominant health practitioner VRI work motivations, in CPE workshopping, for both practitioners and remote health service managers, to promote building mutual empathy and understanding;

xi) Developing a "ready-reckoner" rating model for the practitioner who is contemplating VRI or other VR work to complete, to compare early motivations with research based likelihood of later VRI/VR compatibility.

xii) Investigating the impact on various motivations, such as challenge seeking and personal demand preferences, caused by substantial periods of work in the VRI community workplace, for work health and related best practice management purposes.

xiii) Investigating the moderating or other roles played by job satisfaction on various work motivations and related retention in the VRI community and other VR workplaces.

At the individual subscale level, the relationships and mutual influences between each of their motivation measures and many workplace variables of interest need to be further explored in the field. These variables could include

choice of type and location of work; effective recruitment and enhanced retention; job engagement, satisfaction, fit and performance; incentive efficacies, including ways to optimise CPE/CPD motivational potential; and in CPE based fostering of responsible autonomy and stress resilience. The subscales also have a potential role in the professional development of remote health managers, to shape appropriate attitudes and practices. Establishing the links between practitioner motivations and reactions to workplace stress, including critical incidents, could also be productive.

9.3.2 Recruitment and retention.

The VRI four-subscale predictive model has both immediate and future value in the assessing of the applicant for very remote work, especially, but not only, in the very remote Indigenous community workplace. The data from such a model would not be appropriately used as the basis to accept or reject the practitioner interested in VR/VRI work without other consideration, but could be helpful in making well considered selection decisions, especially at a distance. The model provides useful information with which to help optimise the match between expectations, related motivations and workplace realities during the recruitment process. The information could also be used to help optimise orientation and induction, practitioner-job fit and so eventually, retention.

The model could also provide useful background information for the negotiating of length of contract and other mutual employer-employee commitments, with the prospective appointee.

9.3.3 Career guidance.

The 14 subscales will be useful in career guiding student health practitioners when further developed. The seven subscales that were responsive to the VRI

context show how subscale subsets can be identified to be helpful in a specific workplace context. With further longitudinal research, it is very likely that the majority of the 14 subscales when fully developed could be useful in career guidance relevant across several levels of remoteness of workplace.

9.3.4 Workplace counselling.

Both the six-variable VRI predictive model and the 33-item VRHPM scale set will be potentially useful in counselling the VR practitioner who presents with any of a wide range of adjustment issues (Opie, Lenthall, et al., 2010). There is strong evidence that the VRI community practitioner faces stressful challenges from various sources (Lenthall et al., 2009; Opie et al., 2013; Wakerman & Davey, 2008). These include professional isolation, excessive and unrelenting work demands, distance management issues and direct and vicarious trauma. The relevant subscale measures would not be appropriately used to simply provide a set of numbers from which to draw a set of conclusions, such as "The practitioner just doesn't have enough of the right motivations". Instead, the subscale responses could be used to guide empathic discussion towards helping the practitioner towards becoming mindful of motivating factors, resolving dilemmas, reviewing values and priorities and so better understanding workplace emotions, and contributing to rational problem solving.

The VRHPM subscales will also provide a useful lens through which to view a practitioner's workplace stress, "burnout" or trauma response claim, for both the practitioner and the assessor. They will be especially useful in "before and after" mode, to help clarify and quantify changes derived from such syndromes.

9.4 Limitations of the study
9.4.1 Deficits inherent in survey use.

Psychological survey based instruments carry several inherent limitations, regardless of their reliabilities and validities. These include their dependence on:

i) The respondent's effort, time and commitment to complete the survey;

ii) The need to avoid response sets such as "faking good" or "bad", "image management" (Reynolds, 1982) and item response resistance, that can all mask real differences and risk creating false ones;

iii) The need for skilled interpretation and responsible and ethical management of, and the subsequent use of, information provided.

iv) The risk of being inappropriately used as a sole indicator: a motivation profile obtained from a scale will always need to be used in concert with the respondent's total presentation.

Taking each of the above consecutively:

The 69-item set of 14 subscales is too long for comfortable use in many research and HR applications. The much briefer VRHPM set, with 33 items, overcomes these disadvantages and promises to be strongly relevant to VR and VRI community work.

The matter of respondent resistance to the sometimes perceived invasive qualities of the motivation subscales was anticipated in the developing of the items. This involved careful phrasing of items to minimise challenging, judgemental or patronising tone. However, a review of the incomplete surveys showed that a majority of those who did not complete all items began avoiding at or near the commencement of the motivation items, even though it was very clear that motivation was the study's *raison d'etre.* This apparent resistance will need to be carefully assessed in the future development work; the resistance may have been more in response to the time required to complete the HPMS becoming

evident at that point, than about item content. The much briefer subscale sets such as the VRHPM subscale set may not induce the problem.

To hedge against the risk of misuse, a user's guide is needed, providing clear and unambiguous guidelines concerning the ethics and responsibilities involved in its use, including the minimum level of credentials required to report on and interpret its results.

9.4.2 Statistical methods used.

There were a number of limitations inherent in the statistical methods used, some associated with the use of non-parametric analyses. These were largely overcome by the careful and conservative interpretation of results.

Both logistic regression and MWU significance testing require the use of a dichotomous independent variable. This requirement led to the by-passing of much potentially useful data. For example, the two VRI community work categories (VRI3yrs+ and No VRI) were drawn from a total of 10 categories of total length of VRI tenure polled in the HPMS. Such simplifying was unavoidable but not always disadvantageous, given the extent of the data that was analysed.

9.4.3 Non-random sampling.

The lack of information concerning actual response rates was of some concern. Professional associations were not in a position to provide figures concerning the response rate to their national newsletter based distributions of the HPMS; these provided the majority of net-based survey responses. In addition, the source of HPMS response was not collected, consistent with the confidentiality guarantee. Only very broad estimates of survey response could be made and the samples obtained could not be considered "random". In follow-up survey work, attempts to minimize this deficit need to be made. However, this disadvantage

was well outweighed by the very broad exposure and response provided by the internet based distributing of the HPMS.

Ethics prohibited the use of personal reward incentives for completion of the HPMS. The commitment of a fixed donation to the respondent's choice of one of four high profile health-related charities for every completed survey received, drew some positive and no negative feedback. This incentive may have biased the samples towards the more altruistic (and less mercenary) respondent, and the survey length may have skewed the completed survey respondents towards the more conscientious and determined.

9.5   Policy Implications

It is recommended that both the non-government and the government sectors of remote health are encouraged and supported to collaborate with a research program involving regular and routine use of the HP motivation subscale sets in their recruitment procedures and work claims. This would involve using the subscales on a provisional basis to begin with, in joint research agreements.

Information provided by the subscales' use could also be used in the design of job promotional material as well as in the guiding, selecting and supporting of very remote health practitioners.

Some of the anomalies in results could have policy implications, such as the absence of significant influence by the early rural/bush exposure variable on substantial VRI retention. Such anomalies could be identified and included in an action plan for further research before being considered in the policy context.

The use of the ARIA+ remoteness classification proved appropriate, avoiding the shortcomings of the majority of "rural and remote" studies in which the not clearly distinguishing between VR, remote and regional workplaces

severely limited the strength of their conclusions with regard to key very remote variables.

9.6   Conclusions

Goals Achieved

The three broad goals of this study have been achieved: A set of motivation scales have been produced which both convey the nature of the predominant motivations associated with choosing the very remote Indigenous community workplace and also help in assessing likelihood of substantial length of stay in such work.

Developing the scales

The motivation construct required careful operational and conceptual definition. The theory of intrinsic and extrinsic duality of motivation was somewhat helpful in conceptualising motivational items but required increasingly careful use as the study progressed. The theoretical framework of self-determination theory, based around motivations concerning autonomy, competence and relatedness, proved lastingly relevant throughout. The study made very evident that scale development concerning the complex psycho-social-behavioural variable of work motivation required painstaking and prolonged attention to data collection and conceptual, analytical and interpretative detail. While there was dispute in the literature as to the most suitable methods for such a study, the results obtained added support for the methods chosen.

It is not feasible to address *all* possible practitioner work motivations at any level of remoteness. However, the set of 14 predominant motivations included

eight relating well to the very remote and very remote Indigenous work contexts. This was partly because sufficient numbers of very remote experienced practitioners were included in the sampling for detailed analysis, an unusual and essential feature of the study.

Future applications

Possible future research applications of the scales are detailed in Section 9.3. Scale validities and reliabilities in various contexts need further appraisal. By including a sufficient number of practitioners with no very remote experience in their production, many of the subscales may be relevant to practitioners in less than very remote workplaces also. The extent of this needs to be tested in further research.

The Very Remote Health Practitioner Motivation subscale set provides one example of how a subset of the 14 subscales can be identified for further specific applications, in a focused and efficient form.

The negative findings concerning the 3Ms motivation construct in the very remote context provided a good example of how even individual subscales can be used to classify, measure and compare practitioner motivations by workplace, in this case to test the validity of an anachronistic, but still often touted, construct of very remote health practitioner motivations. While the construct received no support across the professions, it remains recognised as one of the early stimuli for this study.

Positive verbal response received for the commitment of a small donation to be made to one of five health service charities of the respondent's choice, for every completed HPMS received, suggests that it deserves researching. This could

be integrated into one or more of the studies proposed in Section 9.3. Evaluating the actual motivating power of such a commitment would be worthwhile.

Closing notes

This study commenced based on the assumptions that the motivations that prompt a practitioner to seek out and then thrive in a job are highly related to the levels of trait-related application, engagement, satisfaction, sense of fit and determination to stay in that job. In fact, these assumptions regularly "go without saying" in the remote health literature on recruitment and retention. Why would such an apparently obvious linkage between work motivations and other key worker variables so often be not well considered in theory or practice? And why, as Humphreys et al. (2009b) observed, has motivation *per se* and the associated influence of commonly used incentives, not been more widely and rigorously considered, in addressing health industry recruitment and retention?

At least one answer to these questions relate to the findings of this study: there has been a lack of suitable tools to consider the matter, which has inhibited the conceptualising, discussing and measuring of the relevant work motivations across work contexts of interest. This study has contributed to addressing this hurdle while enabling the further development of, and applications for, the health practitioner motivation scales.

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APPENDIX A

The Health Practitioner Motivation Survey (HPMS) as used in 2013/14:

The nature and influence of the health practitioner's work motivations on key workplace outcomes

Dear Colleague

Thank you for considering this project, the Information Sheet for which is summarized as

follows. We are seeking health practitioner respondents (allied health, medical, nursing) from

a wide range of work locations. In completing the attached survey, you will:

- Add vital knowledge to help enhance the recruiting, supporting and retaining of health practitioners, especially but not only in unusual workplaces;
- Contribute to the development of a health practitioner's motivations scale;
- Reflect on and clarify your own career values, drivers and priorities;
- Probably earn some CPD credits (check with your professions guidelines if in doubt);
- Be invited to nominate one of five health foundations: Frontier Services (for remote Australia), RFDS, Fred Hollows (vision repair in high need places), Ponting (children with cancer) or MSF (medical services in challenging areas) - to receive a donation to recognize your time and effort in completing the survey. The project has $2000.00 to distribute this way.

So your responding will help many.

The survey usually takes between 15 and 25 minutes to complete, depending mainly on your

work history. Feedback suggests that most enjoy the exercise. Your response will be entirely

anonymous. You can email me (see last page) to request a summary of the project's

findings. This will not link your name with your completed survey.

The project is ethically approved by the Flinders University's Social and Behavioural Research Ethics Committee (SBREC Project no. 5669; June 2013). Your submitting the completed survey will be taken as your informed consent to participate.

I hope you choose to complete the survey and enjoy it!

Michael S Tyrrell *PhD student, principal researcher and clinical psychologist*

Centre for Remote Health,   PO Box 4066 Alice Springs NT 0871;

November 2013

Classification of remoteness: Accessibility Remoteness Index Australia 2006

Accessibility Remoteness Index Australia 2006
ARIA+ and ARIA++ are indices of remoteness derived from measures of road distance between populated localities and service centres. These road distance measures are then used to generate a remoteness score for any location in Australia.

ARIA+ (2006) 1 km grid

- Major cities (0–0.20)
- Inner regional (> 0.20–2.40)
- Outer regional (> 2.40–5.92)
- Remote (> 5.92–10.53)
- Very remote (> 10.53–15.00)

Data Sources:
GISCA, The University of Adelaide
Australian Government Geoscience Australia, & Australian Bureau of Statistics
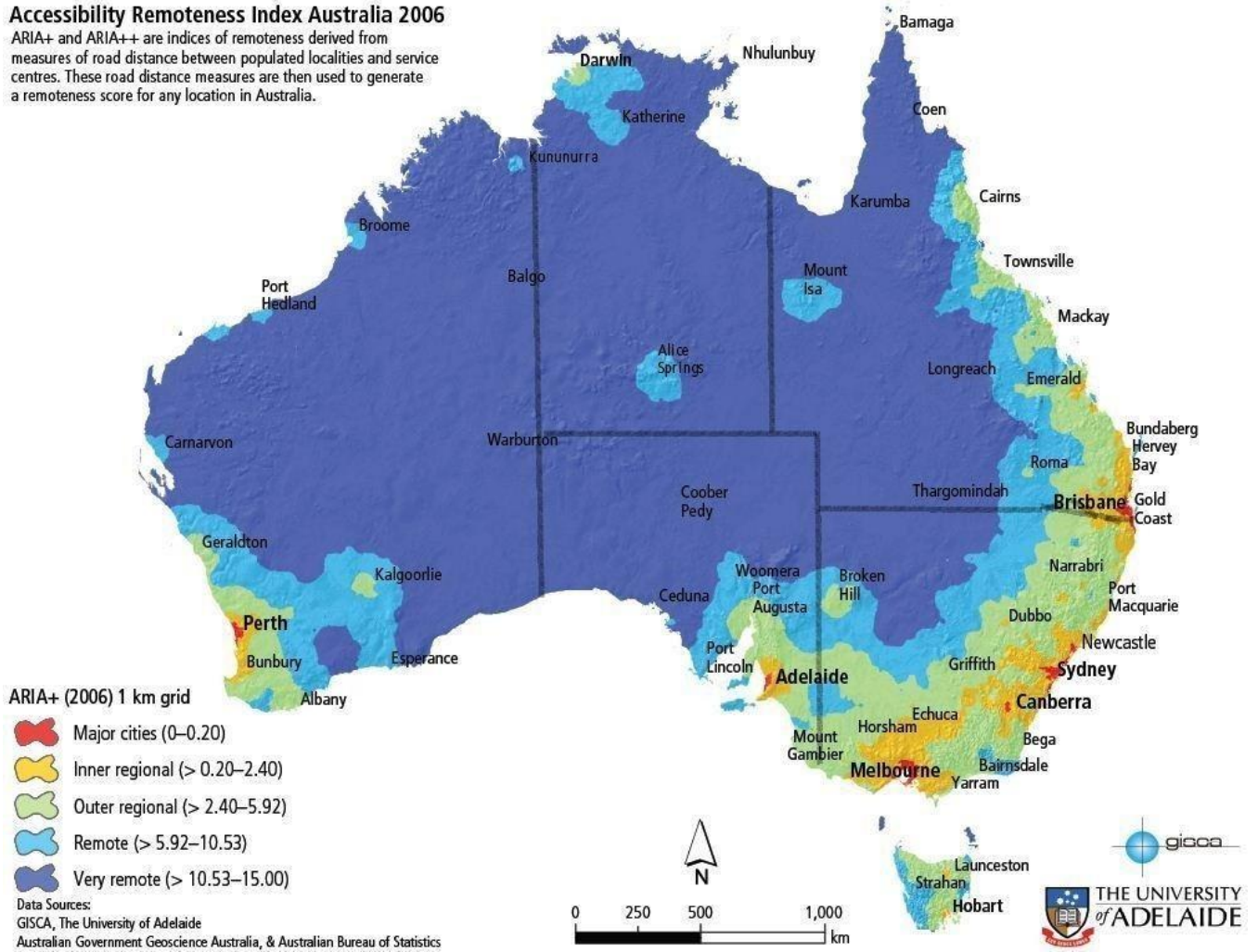
.   PTO to commence survey.

Section 1 – About you and your career:

Thank you for deciding to proceed**.** Please clearly tick the box that is most right for you for each question and add information where appropriate:

1. Are you: Female ☐ $_0$ Male ☐ $_1$

2. Are you Aboriginal or Torres Strait Islander?   Yes ☐ $_0$ No ☐ $_1$

3. What country were you born in? ………………………

4. Please tick your age range: 20-30yrs ☐   31-40yrs ☐   41-50yrs ☐

51-60yrs ☐   over 60yrs ☐

5. Do you have a spouse/partner ?   Yes ☐ $_0$ No ☐ $_1$

6. If yes to Q5, is he/she living with you now?   Yes ☐ $_0$ No ☐ $_1$

7. Do you have children - including step and foster children?   Yes ☐ $_0$ No ☐ $_1$

8. If Yes to Q7, please tick which of the following apply to any or all of your children:

Pre school ☐ $_0$ Primary ☐ $_1$ High school - local ☐ $_2$

Boarding school/Uni/college ☐ $_3$ Left school, lives at home ☐ $_4$ Left school, left home ☐ $_5$

9. What Profession do you practice in now?

Nursing ☐ $_0$ Medical Practitioner ☐ $_1$

Allied Health (involving one-to-one health care provision) ☐ $_2$

Other (eg specialist health worker, conditional registrant, student, retired etc) ☐ $_3$ -   please specify…………………………………………

10.   Did you train in Australia in your primary professional degree(s)?

Yes ☐ $_0$ No ☐ $_1$

11.   Did you train in one or more post graduate specialty(ies)? Yes ☐$_0$
No☐$_1$

If yes, which specialty(s)?...

12.   In your present job(s), please tick whichever you are employed by:

Government department (non hospital) ☐$_0$ Hospital ☐$_1$

Aboriginal Community Controlled Health Service☐$_2$ Other NGO ☐$_3$

Health recruitment /locum Agency ☐$_4$ Private (eg self employed consultant) ☐$_5$

Tertiary (eg university) ☐$_6$ Seconded training placement ☐$_7$ Other ☐$_8$ ………………..

13.   In your schooling, university, internship and/or other formal training placement years, did you spend significant total time (months or years) in locations you consider "rural" or "in the bush" ?   Yes ☐0   No☐1

Section 2: Your Work Experience by Location

14.   After looking at the map of Australia (page 2), please enter in the table below the approximate *total lengths of time* you have worked as a health practitioner at **each level of remoteness**, (including Major cities) using the map's zonings. Where you have been based in one zone while providing services in another (eg regular Drive In/Drive Out from Remote to Very Remote), just approximate the totals for each zone when summing the zone totals.

If you are not sure from the map whether one of your workplaces was "Very Remote", or

"Remote", or "Regional", please choose the *more remote* possible option and record total

work time in the table accordingly, but write the name(s) of the place(s) you are in doubt

about, and how long you worked there, in the space provided below the table:

Location by Remoteness	Total time worked in each zone - Round figures to the nearest year, month *or* week please.		
	Years	**Months**	**Weeks**
Major City (red)			
Inner and Outer Regional (orange, green), eg Horsham, Kalgoorlie			
Remote (pale blue) eg Mt Isa, Esperance			
Very Remote town (dark blue) eg Tennant Creek, Coober Pedy			
Very Remote community - mainly Indigenous eg Bamaga, Yuendumu			
Very Remote community - mainly Mining eg Pilbara			
Very Remote – other (in Australia)			
"Rural" to Remote: Overseas			
Very Remote: Overseas			

Community, State and duration of work where you are not sure of remoteness zone

.
…..……………………………………………………………………………….

15.　　　Please tick in which zone or zones you are working now:

Major city☐0　　　Inner and Outer Regional ☐1　　Remote ☐2　　　Very remote ☐4

16.　　　How long have you been in your current job ? …………weeks / months / years (circle whichever applies).

17.　　　Have you **ever** worked "Very Remote" in Australia and/or overseas? (NB if you recorded any time at all for "Very Remote" work in Q14, then the answer here is "Yes"):　　　　　　　　Yes☐0　　　　　　　　　No ☐0

If "Yes" ie you have worked very remote, please continue to item 18;

If "No", please now go to top of next page (P6), Item 23.

18.   Please tick your career intentions with regard to Very Remote health work:

Finished with very remote work ☐$_0$ Finished for now but intend to return to it sometime ☐$_1$

Will stay for a definite time ☐$_2$;

Will stay indefinitely ☐$_3$ Will quit soon ☐$_4$ Don't know ☐$_5$

19.   What is the longest single continuous period of employment that **you have lived and worked** in a very remote workplace? …………weeks / months / years (NB: **circle** whichever applies).

20.   Where do you prefer to **actually reside while working Very Remote**, given the choice?

In the very remote community or town of your workplace ? ☐$_0$

In a remote community/town with Drive In/Drive Out (DIDO) or Fly In/ Fly Out (FIFO) ? ☐$_1$

In a regional community/town with DIDO or FIFO? ☐$_2$

A major city with FIFO ☐$_3$

Other? ☐4   for example:………………………………………………

21. Please record what you recall as your main motivation(s) for seeking Very Remote work, **before** your first such work experience:

………………………………………………………………………………………………

22. Did your main motivations for working Very Remote change much after you worked there for a while?

Yes ☐$_0$ No ☐$_1$ Don't recall ☐$_2$

If yes, brief details please (eg to what? why? gradually/suddenly?): …………………………

For those who have completed items 18-22, please now go on to Item 25 (below).

23. Please indicate your level of any intent ever to work in a very remote mainly Indigenous workplace (VRI) in Australia or overseas:

Have never intended to ☐$_0$ Some Intent but no action ☐$_1$

Researched a VRI job opportunity but no more ☐2

Applied for one or more VRI jobs ☐3   Went for a VRI job Interview☐4

Offered a VRI job but rejected it ☐5

24. How probable do you think it is that you will ever seek Very Remote work some day?

Extremely unlikely☐0   Unlikely☐1   Possible ☐2   Probable ☐3   Very Probable☐4.

Section 3: You in Your Job

Taking everything into consideration, how satisfied are you with your **present** job?

Please tick one box only:

Extremely dissatisfied	Very dissatisfied	Moderately dissatisfied	Not sure	Moderately satisfied	Very satisfied	Extremely satisfied
☐ (0)	☐ (1)	☐ (2)	☐ (3)	☐ (4)	☐ (5)	☐ (6)

25. As best you can recall, how satisfied were you with any past very remote work experience? (please leave blank where not applicable) - **Please tick one box only:**

Extremely dissatisfied	Very dissatisfied	Moderately dissatisfied	Not sure	Moderately satisfied	Very satisfied	Extremely satisfied
☐ (0)	☐ (1)	☐ (2)	☐ (3)	☐ (4)	☐ (5)	☐ (6)

For each item below, please tick one box per row that applies best for you in your **present**

health practitioner job:

My values, interests, goals and skills match ……	0 Very poorly	1 Poorly	2 Some-what poorly	3 Some-what well	4 Well	5 Very well
27. my duties.						
28. my employing organisation's values and culture.						
29. those of my close working colleagues.						
30. the needs and expectations of the community in which my job sits.						

Please indicate how frequently you experience the following feelings at and from your present work (only one tick per row please):

Feelings from work :	Never 0	A few times per year or less 1	Once a month or less 2	A few times a month 3	Once a week 4	A few times Week 5	Every day 6
31. At my work I feel bursting with energy.							
32. At my job, I feel strong and vigorous.							
33. I am enthusiastic about my job.							
34. My job inspires me.							
35. When I get up in the morning, I feel like going to work.							
36. I feel happy when I am working intensely							
37. I am proud of the work that I do.							
38. I am immersed in my work.							
39. I get carried away when I am working.							

Section 4:

Attractions, preferences and turn-offs in choosing your Job

For each of the following, please tick the box that applies closest for you (only one tick per row please):

Usually I ……	0 Very unlike me	1 Unlike me	2 Moderately unlike me	3 Moderately like me	4 Like me	5 Very like me
40. prefer routine to variety.						
41. will take risks to gain new experiences.						
42. choose work that involves adventure.						
43. prefer rural community living to city living.						
44. love having to adapt to new situations at work.						
45. work best where certainty prevails.						
46. would refuse to drive through the bush on dirt roads at night.						
47. am excited by the idea of living in wilderness country.						
48. feel the odd one out socially, wherever I am.						
49. am considered by some as too high a risk taker.						
50. enjoy taking on a large clinical workload.						
51. get bored with any job after a year or two.						

In considering a new job, I prefer one that …….	0 Very unlike me	1 Unlike me	2 Moderately unlike me	3 Moderately like me	4 Like me	5 Very like me
52. teaches me to communicate well with people from another culture.						
53. raises my confidence in working with people of other cultures.						
54. introduces me to the stories and views of Aboriginal and Torres Strait Islands people.						
55. helps me learn to speak an Aboriginal or Torres Strait Islands language.						
56. requires me to both manage staff and provide clinical services.						
57. involves me helping to "Close the Gap" between Indigenous and nonIndigenous health status.						
58. enables me to serve my mission to help people in real need.						
59. offers me a strong sense of purpose in my life.						

Given the choice, I will choose a job that helps me …….	0 Very unlike me	1 Unlike me	2 Moderately unlike me	3 Moderately like me	4 Like me	5 Very like me
60. build my skills to deal with complex presentations in my patients/clients.						
61. be recognized in my community as an expert in my field.						
62. feel a good sense of place and belonging, both in and out of work.						
63. carry out research in areas of special clinical interest to me.						
64. achieve goals inspired in me by a strong role model.						
65. feel I am part of a committed team.						

I am more inclined to stay in a job if I ……	0 Very unlike me	1 Unlike me	2 Moderately unlike me	3 Moderately like me	4 Like me	5 Very like me
66. am expected to consult with other staff frequently.						
67. have a significant management role						
68. am free to do my job with very little managerial oversight.						
69. Get frequent positive feedback about my work from management.						
70. have management at a good distance from my workplace.						
71. have ready access to expert clinical support.						
72. can save well for my future financial independence.						
73. am not presented with complex clinical challenges often.						
74. am central to keeping the service running.						

I would quit a job where…….	0 Very unlike me	1 Unlike me	2 Moderately Unlike me	3 Moderately like me	4 Like me	5 Very like me
75. I sometimes have to deal with threatening and aggressive behaviour.						
76. the local climate makes life uncomfortable sometimes.						
77. clients/patients regularly approach me out-of-hours about their needs.						
78. my employer does not show strong leadership in what is expected.						
79. I feel professionally isolated a lot of the time.						
80. most of my patients/clients have limited English.						
81. there is no local schooling suitable for my children. (Leave blank if Not Applicable).						
82. there is no staff backfill of my job when I take leave.						
83. I quite often get called out by the job after-hours.						
84. I get very little positive feedback from management and patients/clients.						

I believe that …….	0 Very unlike me	1 Unlike me	2 Moderately unlike me	3 Moderately like me	4 Like me	5 Very like me
85. Visiting (FIFO,DIDO) service arrangements are, overall, best for very remote communities.						
86. getting involved in community activities is essential for my effective primary health care practice.						
87. re- locating to a new job is a good way for me to find emotional healing.						
88. certain experiences in my early years still influence my career decisions.						
89. mixing social and clinical relationships should be avoided.						
90. At my stage in life I need to be doing something very different from my past patterns in my career.						

I am committed to……….	0 Very unlike me	1 Unlike me	2 Moderately unlike me	3 Moderately like me	4 Like me	5 Very like me
91. work that is consistent with my spiritual belief system.						
92. making joint decisions with those important to me about any career move.						
93. standing up for the rights of those with less say, even when it costs me in some ways.						
94. having a job within no more than a few hours' drive of my family networks.						
95. making a substantial difference in this world via my work.						
96. developing evidence based knowledge about those with very substantial health/medical needs.						
97. providing care for those who are under-served.						
98. supporting public health programs even when they challenge individual freedoms (eg vaccination programs, reduced alcohol access).						
99. delivering care to those who are unable to maintain good health without help.						

	0 Very unlike me	1 Unlike me	2 Moderately unlike me	3 Moderately like me	4 Like me	5 Very like me
100. having work which gives me a strong sense of meaning in life.						
And I am also committed to ……						
101. putting duty above my own needs in health practice.						
102. choosing a work situation that allows me an optimally healthy lifestyle.						
103. my partner being able to get suitable work near my work (leave blank if Not Applicable).						
104. respond to a calling to help bring healing to people in great need.						
105. avoiding the conflicts I've met in previous workplaces.						

In choosing any job, my big priorities include…..	0 Very unlike me	1 Unlike me	2 Moderately unlike me	3 Moderately like me	4 Like me	5 Very like me
106. the needs and wants of those special to me.						
107. negotiating a generous pay and annual leave package.						
108. the career opportunities the job offers.						
109. my continuing professional development costs being met by the employer.						
110. being able to obtain a scholarship to help me further my post graduate studies						
111. to significantly increase my retirement funding.						
112. to receive allowances, tax breaks, and/or HECS pay outs.						
113. developing my private practice.						
114. negotiating a contract with cash bonus for staying the full term.						

	0 Very unlike me	1 Unlike me	2 Moderately unlike me	3 Moderately like me	4 Like me	5 Very like me
115. maintaining my out-of-work close relationship network with regular face-to-face contact.						
116. avoiding the people hassles I faced in past workplaces.						

In choosing any job, my big priorities will include …..	0 Very unlike me	1 Unlike me	2 Moderately unlike me	3 Moderately like me	4 Like me	5 Very like me
117. support to get fully registered in my profession. [leave blank only if Not Applicable]						
118. access to a work vehicle with private use.						
119. feeling familiar and comfortable in the community I live in.						
120. being provided with well subsidised accommodation.						
121. that any visa restrictions on me are waivered as soon as possible [leave blank if Not Applicable].						
122. very good pay for any after-hours on-call and call outs.						

Wherever I work, I feel the need to ……	0 Very unlike me	1 Unlike me	2 Moderately unlike me	3 Moderately like me	4 Like me	5 Very like me
123. be within easy driving distance of major city amenities.						
124. gain on-the-job training experience to significantly advance my clinical skills.						

125. be inspired by the surrounding environment I live in.					
126. feel free to use my professional relationship networks to get things done for my clients/patients.					
127. establish a very comfortable work/leisure balance.					
128. express my gift for helping those who are suffering.					
129. feel free to deliver local community health education programs.					

Wherever I work, I feel the need to……	0 Very unlike me	1 Unlike me	2 Moderately unlike me	3 Moderately like me	4 Like me	5 Very like me
130. be the leader of the health/medical team I work in.						
131. feel that both I and those close to me are well respected by the community we live in.						
132. be able to regularly access a trusted mentor.						
133. feel anonymous in community after hours.						
134. have clinical centres of excellence readily accessible for my patients/clients.						
135. feel free to be available all hours to provide help for any workplace emergency.						
136. have frequent easy access to good clinical supervision.						
137. feel I am carrying out God's will in helping people less well off than me.						
138. live in a close knit community where most people know each other.						
139. feel welcomed to teach my area of expertise to staff, students and/or community residents.						
140. feel a real passion for doing my job.						

Thank you very much for completing this survey. In recognition of your valuable time and effort, please select *one* of the following causes to receive a donation:

Fred Hollows Foundation (vision repair)☐0 Frontier Services (remote services) ☐1

Medecins sans Frontieres (MSF) ☐3   Ponting Foundation(children with cancer) ☐4

Royal Flying Doctor Service ☐ 5

Should you feel the need to talk through any issues raised, you could phone CRANA +'s Bush Support Service (1800 805 391) if you are working remote or very remote, or see your organisation's local employee assistance provider, to talk it over. If you would like to receive a summary of findings and donation totals made, please email me your request headed "HPMS FEEDBACK REQUEST" . Please enclose your completed survey in the accompanying free-mail addressed envelope and post it soon.

With sincere thanks for your time and effort.

Michael Tyrrell PhD student and clinical psychologist; Michael.tyrrell@flinders.edu.au

APPENDIX B

Table B1.

HPMS Motivation Items (nos 40-140): Item Source and Reasons for Inclusion

All items derive from one or more of the six broad domains schematized in Figure 3.2.1 concerning health practitioners work motivation (HPWM).

Key:

HP = health practitioner; LoT = Length of Tenure; LR = Literature Review; MST = researcher/author; PHC = Primary Health Care; PSM = Public Service Motivation; VoI(s) = Variable(s) of Interest; VR = Very Remote; VR LoT = Very remote length of total tenure; wrt = with respect to.

HPMS ITEM Usually, I …….	Work motivation domain	Source/origin of item	Rationale for inclusion	Purpose for inclusion
40… prefer routine to variety. (reverse scored)	Simulation	Variation on IPIP - 6FPQ items tapping "variety seeking"	LR: Eley et al 2008a; Price and Goodman(2006) found variety seeking links with stay/go rural /remote decisions	Explore links wrt variety/routine, choice of work location, retention & other Stimulation domain items.
41…. will take risks to gain new experiences.	Stimulation	Variation on IPIP & TCI harm avoidance items (reverse)	LR: Eley et al 2008 found "harm avoidance" trait inversely related to length of stay in rural workplace.	As above.
42…. choose work that involves adventure.	Stimulation	Variation on IPIP & TCI novelty and variety seeking items	LR: informed opinion recommended adventure seeking for VR work	As above.
43….. prefer rural community living to city living.	Lifestyle/living environment (L/LE)	Variation on identified incentive (eg Garnett et al 2008) wrt retention and work location	Attraction to bush linked with longer retention there (Garnett et al 2008)	Explore links wrt living location preferences, choice of work location, retention & related L/LE items.
44….. love having to adapt to new situations at work.	Stimulation	Variation on IPIP-6FPQ adaptability item.	LR: variety seeking, adaptability/resili-ence all found to be important in VR work.	Explore links wrt preferences re new work situations, choice of work location, retention & other Stimulation domain items
45. ….work best where certainty prevails (reverse scoring)	Stimulation	Variation on IPIP-6FPQ adaptability item	As above	Explore links wrt need for certainty, choice of work location, retention & other Stimulation items.

46…. would refuse to drive through the bush on dirt roads at night. (reverse scored)	Stimulation	Bush work variation of IPIP-NEO adventure/risk item: possible low VR retention risk estimator	LR: informed opinion recommended adventure seeking for VR work	Explore links wrt night drive risk, choice of work location, retention & other Stimulation domain items.
47… am excited by the idea of living in wilderness country.	Lifestyle/living environment (L/LE)	Retention studies (eg Garnett et al 2008) wrt non urban work choices.	LR: links between rural/remote living preferences and remote retention	Explore links wrt wilderness preferences, choice of work location, retention and other L/LE domain items
48…. feel the odd one out socially, wherever I am.	Intrinsic/other: Fit & Belonging	Reversed variation on IPIP-NEO and TCI extraversion items	3Ms: testing the "Misfit" construct	Explore links wrt sense of social fit & choice of work location, retention & other F&B items
49….am considered by some as too high a risk taker.	Stimulation	MST: Modified TCI 140 and IPIP-MPQ items re harm avoidance	LR: As for items 40-42 above.	Explore wrt link between risk appetite, VR work and retention
50…..enjoy taking on a large clinical workload.	Competence: Professional development	MST: measure of motivation for high clinical workload	LR: work overload cited as disincentive to stay in remote+ work (eg Lenthall et al 2009 Campbell et al 2012)	Explore links wrt clinical work preferences, choice of work location and retention
51….get bored with any job after a year or two. (reverse scored)	Stimulation	MST: work-place parallel to novelty. variety seeking items (eg TCI 140);	LR: links between high variety, novelty seeker scores and retention in "rural and remote" health workplace (Eley et al 2010)	Explore links between novelty need and VR choice and retention

| HPMS ITEM

In considering a new job, I prefer one that ….	Work motivation domain	Source/origin of item	Rationale for inclusion	Purpose for inclusion
52….teaches me to communicate well with people from other cultures	Intercultural	MST; Derived from various sources including informed opinion & retention literature	LR: informed opinion cited respect & interest in inter-cultural matters as necessary for successful VR work eg Howard and Ferguson (1999)	A VR-sensitive motivations scale will need to tap intercultural interests and respect
53…. raises my confidence in working with people of other cultures	Intercultural	MST; Derived from various sources including informed opinion & retention literature	LR: as above.	A VR-sensitive motivations scale will need to tap intercultural orientation & confidence
54…. introduces me to the stories and views of ATSI people	As above	As above	As above	As above

HPMS ITEM In considering a new job, I prefer one that …. (continued)	Work motivation domain	Source/origin of item	Rationale for inclusion	Purpose for inclusion
55….helps me learn to speak an ATSI language	As above	As above	As above	As above
56….requires me to both manage staff and provide clinical services	Competence: Career building	MST; based on informant advice and experience	LR: missing career building opportunities cited as a disincentive in remote+ work (Lenthall et al., 2009)	Explore links wrt choice of, & retention in, small and/or remote, VR community based teams and dual professional roles
57….. involves me helping to "Close the Gap"…	Other/intrinsic: Intercultural Interests;	MST; included based on the concept's high relevance and profile.	Expect "Close the Gap's" national motivating role to be assumed by individuals as motivating	Explore links wrt choice of, & retention in, length of stay in Indig-enous workplaces of all locations
58. ….enables me to serve my mission to help people in real need.	Other/intrinsic: Mission and meaning	Joint variation on Public Service Motivation (PSM) (Perry 1996) Compassion items and 3Ms Mission-ary construct.	LR: very rare mention of mission related motivations invited further exploration.	Explore any links between felt mission to serve, choice of work location and retention therein
59…offers me a strong sense of purpose in my life.	Other/intrinsic: Mission and meaning	Variation on PSM scale item concerning social justice and compassion.	LR: little explicit ref to meaning or purpose as motivators; this invites further exploration	Explore links between sense of purpose & work location choice and retention

HPMS ITEM Given the choice, I will choose a job that helps me….	Work motivation domain	Source/origin of item	Rationale for inclusion	Purpose for inclusion
60… build my skills to deal with complex presentations in my patients/clients.	Competence: Professional skills building	Variation on IPIP and TCI 140 resourcefulness and self-efficacy items	LR: much support for notion of advanced skill building and related CPE/CPD/CME as motivators in rural, remote and VR work.	Explore links wrt advanced skills and CPE seeking, choice of job location, retention and related VOls.
61… be recognized in my community as an expert in my field.	Competence: Self determination	MST: based on evidence eg Pathman (2009) that local recognition is important motivator to stay	LR: absence of mention in large reviews invites further exploration	Explore importance of recognition as an expert in work location choice, retention and wrt VOls.

HPMS ITEM (continued) **Given the choice I will choose a job that helps me….**	Work motivation domain	Source/origin of item	Rationale for inclusion	Purpose for inclusion
62…. feel a good sense of place and belonging, both in and out of work. Continued:	Other/Intrinsic: Fit and Belonging	MST: based on evidence (as for item 61) that sense of belonging is important motivator to stay	LR: absence of mention in large reviews invites further exploration	Explore importance of sense of belonging in location choice and retention and to subscale Vols.
63….carry out research in areas of special clinical interest to me**.**	Competence: Professional advancement	MST: based on very occasional reference to conducting health research as a work motivator	LR: rare mention of the role of research invites its further exploration	Explore links wrt clinical research and job location choice, retention and related Vols.
64…. achieve goals inspired in me by a strong role model.	Competence: Mission, meaning and purpose	MST: based on HP informants' and PSM evidence (Perry, Coursey, & Littlepage, 2005) that formative early experience can inspire exceptional later public service.	LR: rare mention invites further exploration	Explore links wrt this item, choice of work location and retention and Vols such as job satisfaction.
65…..feel I am part of a committed team.	Other/Intrinsic: Fit and belonging	MST: reverse of 3Ms' Misfit construct plus LR references to sense of team.	LR: evidence that good sense of team belonging is an incentive to stay eg Campbell et al 2012	Explore links wrt sense of strong team and work choice, retention and Vols such as job satisfaction, related subscales.

ITEM **I am more inclined to stay in a job if I..**	Possible work motivation domain (see HPWM Schema)	Source/origin of item	Rationale for inclusion in the initial survey	Purpose for inclusion
66….am expected to consult with other staff frequently.	Autonomy: Preferred ways of working	Variation on TCI and IPIP extrovert related items.	LR: informed opinion recommended networking and team work for successful remote work	Explore possibly complicated links between possibly inverse autonomy item (team networking), work location choice and retention
67…. have a significant management role.	Competence/ autonomy: Professional advancement;	MST: HP informants suggest a tension between management and autonomy needs in the remote, VR workplace	LR: distance management frequently cited as a de-motivator in VR work (Lenthall et al 2010) & autonomous work as a motivator	Explore links wrt management issues, autonomy needs, remoteness and retention;

ITEM I am more inclined to stay in a job if I.. (continued)	Possible work motivation domain (see HPWM Schema)	Source/origin of item	Rationale for inclusion in the initial survey	Purpose for inclusion
68…. am free to do my job with very little managerial oversight.	Autonomy/ Competence: Preferred ways of working	MST: as above	LR: as above	AS above
69…get frequent positive feedback about my work from management (reverse scored).	Autonomy: Preferred ways of working	MST: as above	LR: as above	As above
70… have management at a good distance from my workplace.	Autonomy: Preferred ways of working	MST: as above.	LR: as above	As above.
71... have ready access to expert clinical support (reverse scored).	Autonomy: Preferred ways of working	Subject of some research in LR (Battye & McTaggart, 2003; Minisini & Sheppard, 2011).	LR: Lack of clinical support in remote areas associated with low prof self-efficacy and low retention.	Explore links wrt felt need/no felt need for clinical support & choice of workplace, retention.
72... can save well for my future financial independence.	Other/extrinsic: Financial interests	A universally accepted motivator; an element of the 3Ms: Mercenary	LR: well examined; found not to be a dominant motivator.	Explore links wrt choice of work location and retention
73… am not presented with complex clinical challenges often. (reverse scored)	Competence/ Autonomy: Preferred ways of working	Derived from stress factors cited in remote health (Campbell, McAllister, & Eley, 2012; Lenthall et al., 2011)	LR: diverse caseload found to be motivator to stay for very remote HPs;	Explore links wrt choice of work location, retention
74…am central to keeping the service running	Autonomy/ Competence: Preferred ways of working	As remoteness of workplace increases, this role becomes more likely to have to fill	LR: ambivalence around this role emerged: central role is frequently cited as an incentive to stay; lack of timely backup frequently cited as major stressor	Explore how centrality/ indispensability may cluster with other items and hence links with choice of work location and retention.

ITEM I would quit a job where…	Possible work motivation domain (see HPWM Schema)	Source/origin of item	Rationale for inclusion in the initial survey	Purpose for inclusion
75... I sometimes have to deal with threatening and aggressive behaviour.	Competence: Preferred ways of working	MST: trauma, violence and aggression in remote/VR work recognised, based on HP informants', management's and personal experience	LR: violence & aggression listed as a stressor and disincentive to stay in the more isolated jobs (Lenthall et al 2011; Opie et al 2012)	Explore this item's links wrt other items, choice of work location, retention and related VoIs.
76...the local climate can make life un-comfortable.	Other/extrinsic: Living /working environment	MST: expected that prevailing climate will influence choice of work location	LR: climate extremes cited as disincentive to stay eg Garnett et al (2007)	Explore links wrt climate extreme, choice of work location, retention and related items
77… clients/patients regularly approach me out-of-hours about their needs.	Other/extrinsic: Preferred ways of working	MST: ready access to HP is a major differentiating variable between less remote and VR workplaces	LR: level of access can be a dis-incentive to stay in rural settings (Manahan, Hardy, & MacLeod, 2009)	Explore links between tolerance to ready access and choice of work location, retention, and apparently related items.
78… my employer does not show strong leadership in what is expected (reverse scored)	Autonomy: Preferred ways of working	MST: Clear mang't leadership that increases certainty well recognised to reduce work stress.	LR: distance management one of four major stressors in RAN research (Lenthall et al 2011, Opie et al 2012).	Explore links wrt need for strong leadership and choice of work location and retention, and with related items.
79… I feel professionally isolated a lot of the time. (Reverse scored)	Autonomy: Preferred ways of working	MST: Professional isolation will usually increase along with remoteness of workplace.	LR: professional & personal isolation cited as major stressor and disincentive to staying in VR work (Lenthall et al 2011, Opie et al 2012, Garnett et al 2007).	Explore links wrt tolerance to professional isolation and choice of work location and retention, and with related items.
80... most of my patients/clients have limited English. (reverse scored)	Other/intrinsic: Intercultural interests	MST: clients' limited English and remoteness possibly linked at the extremes (inner city/VR).	LR: rarely mentioned as an incentive or disincentive in VR or "serving the underserved" work, so inviting further exploration	Explore links wrt client/patient limited English, HP acceptance, choice of work location, retention and links with possibly related items.
81….there is no local schooling suitable for my children (Leave blank if Not Applicable).	Other/extrinsic: Significant others' needs;	MST: expected that lack of suitable local schooling is a major de- motivator for HPs with families	LR: unmet needs of significant others cited as disincentive to stay in several reviews eg Campbell et al (2012); also relevant are Manahan (2009) and MacLeod et al's (2004) "filter factors". (MacLeod, Kulig, Stewart, Pitblado, & Knock, 2004) .	Explore item's links wrt choice of work location, retention and links with related items
82...there is no staff backfill of my job when I take leave.	Other/extrinsic: Management ;	MST: based on evidence that back-fill is needed to avoid burn-out (Lenthall et	LR: links between burnout, lack of backfill, stress and related	Explore links wrt no backfill, choice of work location,

	Living /working environment	al 2011; Giles and Giles 2008).	disincentives to stay in VR work (Campbell et al 2012; Hegney et al 2002)	retention in VR, and related items
83…I quite often get called out by the job after-hours. (reverse scored)	Other/extrinsic: Preferred ways of working	MST: Access issues expected to relate directly to level of remoteness of community.	LR: diverse high clinical workload and little timeout cited as significant incentives and disincentives (Godwin, Hoang, Crocombe, & Bell, 2014); Fraser (2009).	Explore links wrt after-hours access, choice of work location, retention and related VoIs and items.
84…. I get very little positive feedback from management and patients/clients.	Autonomy: Autonomy	MST: need for positive feedback expected to be higher in younger less remote HPs.	LR: positive feedback rarely mentioned in the literature, inviting further exploration.	Explore links wrt need for positive feedback, choice of work location, retention, and with other autonomy related items.

HPMS ITEM I believe that…..	Possible work motivation domain	Source/origin of item	Rationale for inclusion	Purpose for inclusion
86…getting involved in community activities is essential for my effective primary health care practice.	Competency: Preferred ways of working	MST: based on LR and observation that community engagement is powerful in VR PHC.	LR: Informed opinion recommended community network-ing as part of effective remote PHC work (Howard & Ferguson, 1999)	Explore links wrt getting involved in community, choice of work location, retention, related items.
87…. re-locating to a new job is a good way for me to find emotional healing.	Other/Intrinsic: Fit and belonging	MST: based on 3Ms implication that HPs who choose a "hardship posting" are often escaping emotional discomfort (Stirrat, 2008).	LR: absence of reference in reviews, inviting further exploration;	Explore links wrt emotional healing belief, choice of workplace location, retention and other possibly related items.
88…. certain experiences in my early years still influence my career decisions.	Competence: Mission and meaning	MST: based on HP informants' reports	LR: early experience shown to be antecedents of committed public service (Perry et al., 2005).	Explore links wrt early experiences, choice of job location, retention, and links with related items
89…. mixing social and clinical relationships should be avoided.	Relatedness: Preferred ways of working	MST: the need to manage legitimate but testing dual relationships is inevitable in VR work	LR: reference to stress concerning thin boundaries between HP and patient/client in VR work (Fraser, 2009).	Explore links wrt beliefs re unclear relationship boundaries, and important workplace variables.
90…..at my stage in life I need to be doing something	Other/intrinsic:	MST: based on midlife age range	LR: reviews confirm older age range chooses	Explore links wrt midlife career change, choice of

very different from my past patterns in my career.		associated with VR workplace	remote/VR work Garnett et al 2007 Qld why don't they stay?? Canada : lone post?	workplace location, retention, other related items.

HPMS ITEM I am committed to…..	Possible work motivation domain	Source/origin of item	Rationale for inclusion	Purpose for inclusion
91… work that is consistent with my spiritual belief system.	Other/intrinsic: Mission and meaning	MST: based on HP informants' reports, (Brown, 2012) and 3Ms: Mission construct (Stirrat, 2008).	LR: absence of mention of spiritual belief drivers invited further exploration wrt seeking to serve the "underserved".	Explore links wrt spiritual beliefs, choice of work location, retention and possibly related items.
92…making joint decisions with those important to me about any career move.	Relatedness: Relationships	MST: based on assumption that relationship considerations can strongly influence job choice	LR: much support for notion that needs of significant others strongly influence choice of work location (Garnett et al 2008; Godwin et al 2014; Campbell et al 2012 etc).	Explore links between joint career deciding, work location choice, retention and related items.
93… standing up for the rights of those with less say, even when it costs me in some ways.	Other/intrinsic: Mission and meaning	Variation on PSM scale item (Perry, 1996; Perry, Hondeghem, & Wise, 2010).	LR: little explicit mention in broad reviews; some reference to "putting in" and "Closing the Gap"	Explore links wrt commitment to advocacy, work place choice, retention, & related domain items
94… having a job within no more than a few hours' drive of my family networks.	Relatedness: Relationships	MST: as for item 92;	LR: social and physical isolation identified as a significant stressor and disincentive (Lenthall et al., 2010; Opie, Dollard, Lenthall, & Knight, 2013).	Explore links wrt commitment to maintaining family contact with choice of work location, retention and possibly related items
95…making a substantial difference in this world via my work.	Other/intrinsic: Mission and meaning	MST: derived from PSM work(Perry 1996) and urban underserved work (Odom Walker et al., 2010)	LR: some reference found to commitment to making a difference being an incentive to stay in working with the underserved	Explore links wrt commitment to make a difference, work location choice, retention and related items.
96…developing evidence based knowledge about those with very substantial health/medical needs.	Competence: Professional advancement;	MST: HP informants suggest that producing knowledge to help those in large health need motivates longer retention	LR: small mention of this potential motivating commitment (Pathman 2009), inviting further exploration.	Explore links wrt commitment to practical research, choice of work location, retention and related items.
97… providing care for those who are underserved.	Other/intrinsic: Mission and meaning	MST: Expect that this commitment will motivate work with Closing the Gap/ Indigenous, all levels of remoteness; testing one element of 3Ms: Missionary.	LR: working with the underserved gains some explicit attention (Grobler, Marais, Mabunda, Marindi, & Reuter, 2009)	Explore links wrt commit to work with underserved, choice of workplaces, reten-tion, and related items.

98…. supporting public health programs even when they challenge individual freedoms (eg vaccination programs, reduced alcohol access).	Other/extrinsic: Preferred ways of working/PHC	MST: expect this commitment to motivate the HP who feels strongly about PHC & tough public intervention for the greater good.	LR: no mention in review as a motivator to stay or go, inviting exploration; such programs are both topical and often controversial remote Australia.	Explore links wrt high commitment to public interventions and choice of work location, retention and related items.
99….delivering care to those who are unable to maintain good health without help.	Other/extrinsic: Mission and meaning	MST: variation on the PSM compassion, serving the underserved, and 3Ms/Missionary motivations.	LR: intrinsic motivations to work with poorly resourced groups received little explicit attention, inviting further exploration.	Explore links wrt commitment to help the poorly resourced, choice of work location, retention and related items (in mission meaning and purpose category).
100... having work which gives me a strong sense of meaning in life.	Other/intrinsic: Mission and meaning	MST: based on HP informants' informal feedback; related to the spiritual beliefs item strand, including some element of 3Ms/ Missionary.	LR: brief mention in the various reviews' summaries and some in individual works (Mirowska, 2011) (Odom Walker et al., 2010); needs further exploration	Explore links wrt life-meaning commitment, choice of work location, retention and related items, with aim of major clarification of mission, meaning and purpose variable.
101… putting duty above my own needs in health practice.	Intrinsic/other: Mission and meaning	MST: variation on PSM self-sacrifice subscale theme (Perry 1996) with element of 3Ms/Missionary.	LR: some evidence linking selfless commitment with burnout in nurses (Vinje & Mittelmark, 2007) and therefore reduced retention.	Explore links wrt commitment to put job before personal needs, choice of work location, retention and other items in mission& meaning domain.
102….choosing a work situation that allows me an optimally healthy lifestyle.	Extrinsic /lifestyle	MST: devised as counterpoint to items such as 101.	LR: some work supporting life balance commitment as benefitting all stakeholders (Hegney & McCarthy, 2000)	Explore links wrt life balance commitment, choice of work location, retention and related items in Preferred ways of working domains.
103… my partner being able to get suitable work near my work (leave blank if Not Applicable).	Relatedness: Significant others' needs	MST: consistent with notion that the more remote the appointment, the more it becomes a family (cf individual) appointment, where applicable.	LR: provided evidence that partner without meaningful occupation put retention at risk (Garnett, Coe, Golebiowska, Walsh, & Zander, 2008; Hall, Garnett, Barnes, & Stevens, 2007)	Explore links wrt partner occupation, work location choice, retention and links with other items in Relatedness
104... respond to a calling to help bring healing to people in great need.	Other/intrinsic: Mission meaning and purpose	MST: Expected commitment to relate to challenging work with poorly resourced people;3Ms/Mission-ary related.	LR: no mention of this in LR reviews; Grobler et al 2009; Odom Walker et al 2010 recognised it.	Explore links wrt calling, chosen work location, retention and other items in MM and P domain

105.... avoiding the conflicts I've met in previous workplaces.	Other/intrinsic : Fit and belonging	MST; based on anecdotal support for the "Misfit" wrt choice of workplace.	LR: no mention of this recruitment motivation inviting further exploration.	Explore links wrt this item, choice of workplace location, retention and other items in F &B domain

HPMS ITEM In choosing any job, my big priorities include…..	Possible work motivation domain	Source/origin of item	Rationale for inclusion in the initial survey	Purpose for inclusion
106... the needs and wants of those special to me.	Relatedness: Relationships	MST: as for item 103;	LR: some reference to prioritising needs of significant others and associated incentives (Schoo, Stagnitti, Mercer, & Dunbar, 2005); Garnett et al (2008)	Explore links wrt item, choice of work location, retention and relationship obligations
107… negotiating a generous pay and annual leave package.	Other/extrinsic: Monetary	MST: based on principle that an HP might seek more than basic pay and conditions; also taps into 3Ms/"Mercenary" construct.	LR: found evidence that HPs usually seek pay appropriate to circumstance; that over-emphasis on monetary reward can lead to poor outcomes eg Garnett et al 2008	Explore links between this item, choice of work location, retention and related items in Financial interests domain.
108…. the career opportunities the job offers.	Competence: Career building	MST: based on notion that career opportunities provide incentive to seek work in remote places.	LR: career building motivations well represented (Gillham & Ristevski, 2007); & de-motivating influence of absence of opportunities noted (Garnett et al 2008).	Explore links between career priority, choice of work location, retention and related items in career building domain.
109… my continuing professional development costs being met by the employer.	Competence: Professional Advancement (PA); Monetary	MST: reflects very broad attention to funded CPE?CPD as a recruitment and retention incentive in the health industry.	LR: mixed findings on CPE/CPD as incentive to stay; lack of CPD funding a clear disincentive . (Humphreys, Wakerman, Pashen, et al., 2009; Solomon, Salvatori , & Berry, 2008)	Explore links between CPE funding priorities, choice of work location, retention, and other PA domain items
110… being able to obtain a	Competence:	MST: as for item 109, in context of	LR: as for item 109;	Explore links between

scholarship to help me further my post graduate studies	Monetary/ CPE/CPD	introduction of scholarship incentives for health practitioners	(Humphreys et al., 2007)	scholarship seeking, choice of work location, retention and related monetary/CPE domain items
111… to significantly increase my retirement funding.	Other/extrinsic: Monetary	MST: based on age distribution of remote HPs; taps into "Mercenary" motivation construct	LR: reviews convey a correlation between level of remoteness in job choice. and age;	Explore links wrt retirement funding priorities, choice of work location, retention, and other items in Monetary domain
112... to receive allowances, tax breaks, and/or HECS pay outs.	Other/extrinsic Monetary	MST: based on mixed findings concerning impact of such incentives plus taps 3Ms/Mercenary construct	LR: did not find monetary incentives strongly and reliably improved retention in remote Australia Garnett et al 2008; (Campbell et al., 2012).	Explore links wrt monetary priorities, choice of workplace location, retention, and related domain items.
113… developing my private practice.	Other/Extrinsic: Professional Advancement	MST: recognising that investment in private practitioner is a strong retention-in- the-area incentive.	LR: some evidence (Schoo et al 2005 ; Giles and Giles 2008) that HPs are more likely to set up private practice in "rural" and remote locations if offered financial help	Explore links wrt private practice priority, work location, retention and related items
114… negotiating a contract with cash bonus for staying the full term.	Other/extrinsic: Monetary	MST: such monetary measures are subject of wide debate.	LR: impact of cash incentives often addressed; evaluations mixed; (Buykx, Humphreys, Wakerman, & Pashen, 2010; Humphreys et al., 2001; Humphreys et al., 2009)	Explore links wrt cash bonus seeking, work location choice, retention and other Monetary domain related items.
115…maintaining my out-of-work close relationship network with regular face-to-face contact.	Relatedness: Relationships	MST: isolation well recognised as a disincentive in remote/VR workplaces (Wakerman, 2004) ; expect item to be location sensitive.	LR: found social isolation a disincentive to stay in VR work (Garnett et al 2008; Fraser 2009; Opie et al 2012).	Explore links wrt intention to counter isolation, workplace location choice, retention, and other Relationship domain items.
116… avoiding the people hassles I faced in past workplaces.	Other/intrinsic: Fit and belonging	MST: testing prejudice that negative social motivations influence some job location choices; tapping into	LR: no mention of *preliminary* negative motivations, inviting exploration wrt selection/	Explore links wrt avoidant motivations, choice of work location, retention and

HPMS ITEM	Possible work motivation domain	Source/origin of item	Rationale for inclusion in the initial survey	Purpose for inclusion
		3Ms/Misfit construct (Stirrat 2009).	recruitment implications.	F&B domain items.
117… support to get fully registered in my profession. [leave blank only if Not Applicable]	Competence: Professional advancement (PA) .	MST: recruitment and retention value of such incentives need further evaluation	LR: some work on problems in HPs seeking registration in remote workplace but no effective evaluation studies found of this specific issue.	Explore links wrt new registrant support, choice of workplace location, retention & other items in PA domain.
118… access to a work vehicle with private use.	Other/extrinsic: Monetary	MST: an easily implemented example of the set of the Monetary motivational domain's incentive items	LR: some qualitative evidence that vehicle private use could be a motivator to lengthen VR retention (Giles & Giles, 2008)	Explore links wrt vehicle access priority, choice of work location, retention and other Monetary domain items.
119… feeling familiar and comfortable in the community I live in.	Other/intrinsic: Lifestyle/living environment;	Item derived from literature; expect feeling comfortable in community to be correlated with retention.	LR: some work (Cutchin, 1997; Pathman, 2009) emphasised the need to ensure medical HPs felt comfortable in new community to maximise retention	Explore links wrt familiar & comfort priority, choice of workplace location, retention and L/LE domain related items.
120… being provided with well subsidised accommodation.	Other/extrinsic: Monetary/ conditions	A frequent practical & monetary condition to add to bundle of motivators to attract and hold HPs in challenging work locations	LR: recognised but not evaluated; important component of the bundling of incentives recommended by Humphreys et al (2009b)	Explore links wrt subsidised accommodation priority, choice of workplace location, retention &related Monetary domain items.
121… that any visa restrictions on me are waivered as soon as possible [leave blank if Not Applicable].	Other/extrinsic: Monetary/ conditions	MST: overseas HPs are motivated to work remote in exchange for Visa relief (ref: personal management experience).	LR: very little evaluation found wrt influence of visa- negotiating on recruitment and retention in VR locations.	Explore links wrt visa priority, choice of workplace location, retention and related domain items
HPMS ITEM **Wherever I work, I feel the need to ….**	**Possible work motivation domain**	**Source/origin of item**	**Rationale for inclusion in the initial survey**	**Purpose for inclusion**

122…. very good pay for any after-hours on-call and call-outs	Other/extrinsic: Monetary/ conditions	MST: pay-rates for afterhours call-out, excessive workload, unclear home/work separation, implicated in "burnout", reduced retention.	LR: influence of after-hours work and pay needs close evaluation as part of incentive packaging, since too high a rate could encourage "burnout".	Explore links wrt after-hours pay-rates priority, choice of work location, retention, and other domain related items.
123… be within easy driving distance of major city amenities.	Other/extrinsic: Lifestyle/living environment	MST; roots of this item in ARIA+ classification criteria	LR: isolation listed as a stressor & disincentive in R&R reviews; could well discriminate wrt "rural" and the more remote HPs.	Explore links wrt need to be close to city, choice of work location, retention and other L/LE domain items
124... gain on-the-job training experience to significantly advance my clinical skills.	Other/extrinsic: Professional advancement	MST: Advancing skills well recognised as a motivator for choice of work setting.	LR: advancing skills & CPD frequently listed as a significant motivator for work in challenging places (Battye & McTaggart, 2003)	Explore links wrt priority re advancing skills, choice of work location, retention and other items in PA domain.
125… be inspired by the surrounding environment I live in.	Other/extrinsic: Lifestyle/Living environment	MST: Based on assumption that quality of living environment influences work location choice.	LR: frequent mention of rural, remote & VR living as a motivating influence in job choice.	Explore links wrt living environ-ment priorities, choice of job location, retention & other L/LE items
126... feel free to use my professional relationship networks to get things done for my clients/patients.	Relatedness: Preferred ways of working	MST: Recognising a well-accepted way of working in PHC as a possible incentive.	LR: professional relationship networking mentioned as a positive influence in jo choice.	Explore preference for using relationship network, choice of work location, retention & other items in PWW domain.
127…. establish a very comfortable work-leisure balance.	Other/extrinsic: Lifestyle/living environment	MST: Recognising work/leisure balance issues are frequently cited as an issue in remote work.	LR: work/leisure imbalance frequently cited as a major stressor/disin-centive to stay in VR work, which is "counter-intuitive"	Explore links between need for balance, choice of work location, retention & other items in L/LE domain.
128… express my gift for helping those who are suffering.	Competence: Mission and meaning (M&M)	MST: roots in PSM (Perry 1996) compassion items and 3Ms/ Missionary construct.	LR: some reference in the few "serving the underserved" studies; no	Explore links wrt sense of gift to help, choice of work location, retention and

HPMS ITEM	Possible work motivation domain	Source/origin of item	Rationale for inclusion	Purpose for inclusion
			explicit mention in the reviews.	related M&M items
129… feel free to deliver local community health education programs.	Competence: Preferred ways of working (PWW)	MST: recognising that an holistic approach to health promotion/illness prevention is both preferable and possible in smaller communities	LR: evidence provided that community health education opportunities can be motivating.	Explore links wrt community ed'n orientation, choice of work location, retention & other PWW items
130….be the leader of the health/medical team I work in.	Competence: Autonomy	MST: recognising that leadership opportunities can be motivating.	LR: clinical team leadership opportunities not addressed, inviting further exploration.	Explore links wrt leadership needs, choice of work location, retention and other Autonomy domain items.
131… feel that both I and those close to me are well respected by the community we live in.	Competence: Fit and belonging	MST: recognising that community respect probably both expected and required, for at least small community HPs.	LR: recognition and respect can be significant drivers (Pathman, Konrad, Dann, & Koch, 2004; Wormsbecker, 2008) but rarely mentioned in LR, inviting their further exploration wrt work motivation.	Explore links wrt need for respect, choice of work location, retention and other F&B domains.
132…be able to regularly access a trusted mentor (Rev).	Autonomy: Clinical autonomy	MST: recognising that mentoring will usually reduce sense of professional isolation & positive positive career influence.	LR: evidence that professional isolation is a major stressor & disincentive eg Campbell et al 2012; Lenthall et al 2010	Explore links wrt need for mentor, choice of work location, retention, and other clinical autonomy domain items

HPMS ITEM	Possible work motivation domain	Source/origin of item	Rationale for inclusion	Purpose for inclusion
Wherever I work, I feel the need to …. (continued)				

133...feel anonymous in community after hours.	Autonomy: Lifestyle/Living environment	MST: relating to social boundary issues in out of work environment	LR: some evidence that lack of time-out can be disincentive to stay in remote/VR work (Lenthall, Opie, Manahan)	Explore links wrt need for a/h anonymity, choice of work location, retention, and with related L/LE items.
134… have clinical centres of excellence readily accessible for my patients/clients.	Competence: Preferred ways of working (PWW)	MST: a variable highly sensitive to remoteness from centres of clinical excellence.	LR: several reviews linked lack of immediate expert back-up to negative influence re retention	Explore links wrt felt need for access to centres of excellence, choice of work location. Retention and other PWW items.
135… feel free to be available all hours to provide help for any workplace emergency.	Competence: Preferred ways of working	MST: anecdotal and literature evidence identifies continuous on-call as a disincentive in work.	LR: evidence that work overload, lack of time off, relate to "burnout" and subsequent quitting.	Explore links wrt need to be over-available, choice of work location, retention & other items in PWW domain.
136...have frequent easy access to good clinical supervision.	Autonomy Professional advancement (PA)	MST: clinical supervision needs & remoteness of workplace need consideration	LR: diverse clinical load & clinical autonomy listed as incentives & low access to clinical supervision as disincentive in remote /VR workplaces.	Clarify links wrt supervision needs, choice of workplace location, retention and other Prof Advancement domain items.
137…. feel I am carrying out God's will in helping people less well off than me.	Other/intrinsic: Mission and meaning (M&M)	MST: religious belief system construct, reflecting 3Ms/ Missionary construct; HP informants suggest these can still be found.	LR: silent on religious belief based motivations, inviting some exploration.	Explore links wrt faith based motivations, choice of workplace, retention, & other M&M domain items.
138…. live in a close knit community where most people know each other.	Relatedness: Lifestyle/living environment	MST: reflects reality of small, and therefore VR, community life.	LR: mixed findings wrt small close-knit community as a motivating and de-motivating influence on stay/go decisions.	Explore links wrt need for close knit community, workplace choice, retention and items relating to L/LE.
139…. Feel welcomed to teach my area of expertise to staff, students and/or community residents.	Relatedness: Preferred ways of working	MST: a common felt need related to small community PHC ethos.	LR: some evidence that skills sharing and related educational initiatives are a positive influence on retention in rural/ remote/ VR work	Explore links wrt need to share skills, choice of work location, retention and domain linked items
140…. feel a real passion for doing my job.	Other/intrinsic: Stimulation	MST: passion is the opposite end of the work energy dimension to burnout; likely to be helpful	LR: some reference that such a need is common in remote HP work (eg Wormsbecker) but	Explore links wrt passion for work with choice of work, retention, and related

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		where the recipients lack resources yet suffer significant health compromise.	overall scant mention, inviting further exploration.	Stimulation domain items.

APPENDIX C

Appendix C.1: HPMS early panel member and potential respondent contact material

2012

INFORMATION SHEET

Missionaries, mercenaries or misfits? The key motivations of the health practitioner who stays the distance in the bush (the Three Ms project)

This Study explores:

- The nature and influence of the health practitioner's motivations on choice of workplace remoteness; and
- The influence of such motivations on several key workplace outcomes including sense of job fit, satisfaction and decision to stay or go; and
- The developing of the Bush Practitioner's Motivations Scale.

It is based at the Centre for Remote Health in Alice Springs, is supported by the Flinders University, Faculty of Health Sciences and has been approved by the Social and Behavioural Research Ethics Committee of Flinders University (August 2012).

Your possible role:

As a health practitioner in outer regional, remote or very remote Australia, you are invited to respond to a set of questions about you, your work and some of the values and related drivers behind your choice of workplace, which some might describe as "in the bush".

Probable benefits:

Feedback suggests that the exercise helps with reflecting on your career choices and what drives them. By completing the survey you also put your hard earned work experience to good use. The resultant knowledge and scale will help with

enhancing both the recruiting and retaining of health practitioners to and in the bush. There is evidence that in so doing, costs in time, money and energy can be reduced, so to improve the overall quality of health services in the bush.

Will you be identifiable by contributing to this study?

No - you will be anonymous. To help with later data management you will be asked to provide a simple code on the last page. All data will be stored at CRH on a password protected computer and in locked cabinets that only the principal researcher will have access to. Neither your name nor your job position will be collected at any stage.

Are there any risks or discomforts involved?

Absolutely minimal risk is anticipated from your involvement in this study. However if you have any concerns, you could raise them per phone or email (see below).

How do you agree to participate?

Your submitted and completed survey will convey your informed consent to participate, based on the conditions outlined here. Agreeing to complete the survey does not mean that you are compelled to answer every question but of course it is hoped that you will feel comfortable enough to do so.

What's Involved?

The first Section is about you and your career to date; it won't take much time. Section Two explores your sense of fit, engagement and satisfaction in your work; Section Three gathers from you the values and drivers which guide your choices of workplace. All this usually takes 25-30 minutes to complete. After submitting the completed survey there is no more to do.

How will You receive feedback?

Project findings will be summarized and sent to your employer organisation in due course. If you want such feedback direct, please email a request under separate cover. Your email address is not sought on the survey itself to preserve your anonymity. If you want more information on any aspect, feel free to use my email address below.

Thank you for taking the time to read this Information Sheet. Attached is a cover letter and method of classifying your workplace level of remoteness, should you wish to proceed.

Michael Tyrrell   PhD Research Student 08 89514724
michael.tyrrell@flinders.edu.au

Appendix C.2 First letter to possible Panel member
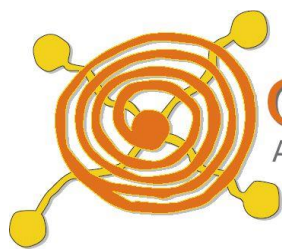
24 August 2012

Dear ….

Expert Advisory Panel : Do the 3Ms still really rule in the bush?

Thank you for agreeing in principle to contribute to the "The 3Ms" project. This study is aimed to shed light on the health practitioner's work motivations relating to remoteness of workplace and how they influence key work outcomes. The Information Sheet attached expands on this. The project has now been approved by the Social and Behavioural Research Ethics Committee of Flinders University.

The whole task could take you up to a total of 1.5 hours spread over three "rounds", over approximately one month. In Round 1, you respond to the survey items just as any respondent would, along the way using colour coded question sheets to help you consider the material. This could take around an hour. In Rounds 2 and 3 you review the consensus changes made in the previous round and return any further thoughts. Changes will be highlighted to make for quick appraisal.

Note that I'm not asking for your answers to the question items themselves, but for your opinions of the material – its clarity, ambiguity, glaring omissions and/or whatever else comes to mind.

The survey set will be delivered in hard copy on the first round; after that, either hardcopy or email, whichever you prefer. It seeks bio- and demographic data and information on work experience and attitude and the main event, work motivation.

Your time taken may be due for professional education credit where applicable. I will acknowledge your contribution in my thesis unless you prefer otherwise and a summary of findings will be sent to you in due course.

Your advice will be of great help in the final drafting of the survey set to ensure its optimal form for later extensive exposure. I'll eventually need around 600 replies across the remoteness spectrum.

I'm very hopeful that you're still ready to lend your extensive acumen to the project. Please complete the consent form (separate attachment) and return via email. Meanwhile, many thanks for your valuable time!

Yours sincerely

Michael Tyrrell PhD research student; michael.tyrrell@flinders.edu.au

Appendix C.3: Panel member: Consent to be involved

PLEASE COMPLETE and SEND to: michael.tyrrell@flinders.edu.au. Thanks.

August 2012

Att Mike Tyrrell

Consent to be a member of Expert Panel for research project: "Do the Three M's still really rule in the bush?" (brief title)

Based on the details concerning the above Panel members' role in your letter of invitation, I agree / do not agree (delete which ever does not apply) to be involved. I note the estimate of probable time commitment and your promise of anonymity.

I look forward to receiving the Expert Panel package first in hard copy form at the postal address below, and undertake to complete my feedback in timely manner, in the stamped addressed envelope provided.

I would prefer to receive rounds 2 and 3 material via hard copy / at the email address below (delete least preferred).

At this stage I agree /do not agree to be acknowledged for my contribution in your final thesis document using the details provided below.

Yours sincerely

....

Title, Name (Please print) ....

Best phone number ………………………..

Email   ………………………………

Mail address   ....

……………………………………………………………………………………………

Centre for Remote Health
A joint centre of Flinders University and Charles Darwin University

October 2012   **Expert Panel Member Guide**

Dear

Missionaries, mercenaries or misfits? The key motivations of the health practitioner who stays the distance in the bush: the Three Ms Project

Thank you for agreeing to critique the attached survey set for the Three Ms Project. The Information Sheet and Survey Cover Letter at Attachment 2 outline the study. Its core premise is that the more remote the choice of workplace, the more important some motivations will be to attract and hold the health practitioner there. There are some briefing notes on work motivation at Attachment 1.

The remoteness classification used is the Australian Standard Geographical Classification - Remote Areas: Major Cities, Inner and Outer Regional, Remote and Very Remote: see the Map and Key at Attachment 2 for more detail.

A minimum 200 survey responses will be sought from health practitioners from each of Outer Regional, Remote and Very Remote areas. Mode of delivery will be hard copy or via the net - depending on circumstance.

Your input will very much help with shaping the survey material to the most valid, relevant and user friendly form possible before formal piloting of it.

The total survey set (Attachments 3) includes a total 128 items. Your first run-through (Round 1) will probably take around 45 minutes including comments. The second and third rounds will be much briefer, making a total of around one hour - hopefully time that will earn you CPE points if required. Be assured that I don't take your time lightly.

Suggested Procedure:

- First, could you reflect on your earliest motivations for becoming a health practitioner; then on your motivations for pursuing your career beyond the early stages; did they change much over time? If you moved into remote and/or very remote work, do you recall any stand-out motivations behind such choices? If you moved back to less remote work, do any motivations for that stand out? Such recall will help you gauge the survey material.
- You might then find the notes on work motivation help you contextualise the survey.
- Reading Attachment 2 as a practitioner who is not yet fully decided to respond to the survey would be helpful. Comments on turn-offs and how to render responding irresistible would be welcomed!
- Then launch into Attachment 3 (the Project Survey, Sections 1-3), as if you have decided as a respondent to do so; if you could note the time begun and finished for each Section that would be useful.
- There is a coloured page of questions after Section 2; then on to Section 3 – the draft Motivations scale; if an item invites comment, just asterisk it and move on so as not to break your flow; after completing the survey, check back to any asterisked items and put your comments on the coloured Comments page, clearly writing each item number(s) in the column provided, alongside your comments for that item.

I'm particularly keen to hear of your recommended new inclusions (especially) or deletions in the survey.

After Round 1, I will send back the modified version with major changes highlighted to facilitate your quick review of them (Round2). Similarly for Round 3. Consensus of 70% of Panel opinion as to major change or deletion is the usual guide for action in each of the three stages of review.

Please note that I do not seek your actual ratings of any of the survey items…. just return your feedback, including the coloured pages and any other pages which have your comments but not your item responses, via the stamped addressed envelope.

All feedback material will be stored securely at CRH and destroyed after the study is completed. You will only be personally referred to when your role is acknowledged in my final thesis report - unless you prefer otherwise. Meanwhile, with many thanks for your time and guidance.

Yours sincerely

Michael Tyrrell   Principal researcher, Three Ms project CRH ; mob 0427534770

Michael.tyrrell@flinders.edu.au

[Attachment 1]

 Briefing Notes for Panel members - to provide some context:

In this study Work Motivation is considered dynamic and multi-factorial, comprising both Intrinsic and Extrinsic components:

Intrinsic Motivations *are those drivers of behaviour which seek desired outcomes within the individual, such as new learning, valued accomplishments, stimulation, and sense of self-realisation, feeling worthwhile, meaningfully engaged.*

Extrinsic Motivations *are those drivers of behaviour which seek changes dependent on outcomes external to the individual eg seeking higher pay for lifestyle needs/desires; seeking higher professional education for later career rewards; networking eg to build relationships.*

This model is not perfect and there are other ways of considering Motivation; this one is useful for this study.

More examples of Intrinsic Motivators that could be relevant here….

Some trait related drivers: eg Altruism – feeling pleasure or need in helping others; variety, sensation needs; risk and challenge needs.

Beliefs and values based: Personal self-efficacy beliefs - about personal competence, capabilities - which can underpin perceived possibilities.

Personal Knowledge and Learning drivers: Indigenous culture drivers that can derive from values, interests, curiosity re Indigenous life.

Professional Self drivers: Professional self-efficacy beliefs - confidence in professional judgment and skills generally – leading to seeking challenge and/or opportunity to exercise them;

Preference for professional autonomy - can be to display, conceal or simply exercise competencies;

Need to feel extended and challenged professionally; Drive for new and advanced skills;

Need for various forms of status and recognition by those with valued opinion;

Need to be "different" and expert in unusual field.

Possible public service motivations: need to act out of compassion, guilt or to atone; satisfactions from serving the underserved, giving back, "putting in";

Self Realization drivers: Spiritual search - for self, meaning , belonging, purpose in life; need to reduce or avoid sense of ill fit back home; need for self healing; answering a "call to vocation" etc

Comments on any of these; any others come to mind??

………

………

………..

More Examples of possibly relevant extrinsic motivators ……

Material or otherwise tangible rewards: wages, allowances, tax breaks, paid CPE, superannuation, free accommodation, mortgage help, reduced required stay in the country to achieve full practice rights; chance to work at higher level of procedures, responsibility; career "leap frogging"; other career or practice boosts; family interests: wanting to work near other family; wanting to "show the kids 'the real Australia' " ;

The paid "bush experience" – opportunity to adventure, tour, see Australia, without incurring costs; raising personal "cred" ie image management around Indigenous/Outback authority/credibility back home.

Drive to do "what needs to be done": the drive to reduce ill health/Close the Gap by direct action; drive to overwork to over-compensate or win approval.

Love of, Attraction to the bush/wilderness environment: Actual or expected love of witnessing, interacting with and exploring desert/tropics/ marine/other wilderness environments.

Should any additional key motivators for bush work come to mind, or any comments concerning the above, please note them here:

……… ………………………

……… …………………….

Attachment 2:
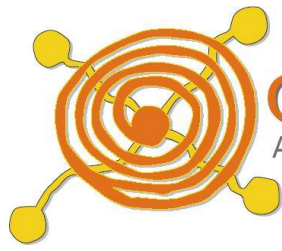
October 2012

Survey Cover Letter

Dear Colleague

**Missionaries, Mercenaries Or Misfits: The Key Motivations of the Health
Practitioner who Stays The Distance in the Bush – The "Three Ms Project"**

If you are considering responding to the survey, having read the Study
Information sheet, the first step is to identify the zones of remoteness you have
worked in using the attached map and key provided. To answer the survey you
will need to be sure of these. You might be surprised at how remote you've been!

Remember that you will remain anonymous. You will find the exercise thought
provoking and it will certainly be putting your health work experience to further
very good use!

On completing the whole survey, please place all your responses in the attached
stamped addressed envelope and mail it. That's all there is to it.

With many thanks for considering this.

Yours sincerely

 Michael Tyrrell   PhD student;   michael.tyrrell@flinders.edu.au

PO Box 4066 Alice Springs NT 0871

Appendix C. 5   Examples of early survey questions and structuring

panel members' responses:

Attachment 3: Time at commencement of Section 1……….

PROJECT SURVEY:
MOTIVATIONS OF THE BUSH HEALTH PRACTITIONER

Section 1 - Personal details: Please use a black or blue ink pen to tick the choice that is right for you and add information where appropriate:

1. Age: ………years

2. Gender: Female ☐ 0   Male ☐ 1

3. Are you: Aboriginal or Torres Strait Islander?   No☐ 0   Yes ☐1

4.   Were you born in Australia?   No☐0   Yes☐1

5.   Did you have rural, remote or any other non-urban experience growing up?   No☐0
Yes☐1

   If Yes, please briefly describe (eg town? schooling? how many years?)_____
_

Qs 6 – 25 re bio-demographics followed, then panel members asked to record :

Panel member: Time at end of item 25 …….;

 EXPERT PANEL: Comments and reactions to questions 1-25 :

General:..
....
....

Specific:

Ease of reading/comprehending? .... /10 where 10/10 = extremely easy;
Comments?

....
....

Level of ease of responding?   **........../10 where 10/10 = extremely easy;**
Comments?   **(Eg re format)**

....
....

Interesting/Tedious/annoying rating :   **............./10 where 0/10 = highly tedious**
and 10/10 = extremely interesting; Comments?

....
....

Stand out questions that need addressing with brief reasons why? Eg awkward,
confusing, repetitive:

....
....

Any other comments? For example, about areas that seem important that are not yet
addressed?

....

Thank you; the Workplace attitudes section follows; the bracketed Category
headings from here on are to help you contextualize the items; they will not be in
the final version.

[Panel member: Time at commencement of next Section?………….]

Section 2: You in Your Job

[Time now ………am/pm]

For the following items, please:

   i)   Rate every item as it relates to you with a X in the box
            appropriate to the scale provided, and add detail where
            appropriate.
   ii)   Feel free to be open and honest;…
   iii)   …….. iv), v), vi).

[Questions concerning sense of job fit and engagement followed]

Section 3 : Possible Work Motivators   [Time now…….am/pm]

[A further 88 work motivation items followed in the Pilot, Version 1, for comment and timing by Panel members, as follows in Exhibit 5.]

Expert Panel: Comments Form for draft Motivation Scale

In considering the items that you have asterisked (and any others), in addition to your intended comments, some of the following may be relevant:

Clarity;   Content;   Wording;   Ease of Responding;   Ambiguity (double meanings etc) ;

High, Moderate or Low apparent relevance to one or other facet of bush work motivations;

 Glaring Omissions;   Any others? ……………………………………………..

In the right hand column, could you rate any items that *you have strong feelings about and therefore probably asterisked,* as follows:

 Must-Delete (0)   Prefer to Delete (1)   Must Leave in (2).

 Any recommended "Must Add" item suggestions will also be very welcome…..

Please be tough! This scale will probably eventually whittle down to around 20 items.

Item number	Comments concerning number items	0), 1), 2)

 [Several pages of this feedback form were provided in hard copy]………

Appendix C.6

Pilot Stage 2: A summary working sheet of a second stage pilot response

(several advanced medical students and self-selected CRH staff

completed this sheet).

Respondent 1:

Item: Feedback/comments/my observations

14, 15   how many can I tick?

15- 17   shift map to make it more convenient;
           how do I convey living in 1 zone and working in another?

21   missed deleting yrs/m/w – need to make these simpler and
           clearer with an "NB don't forget to do this section"!

30   often or frequently?

55   how useful (me) ?

Respondent 2:

Time taken – 20min

15-17:   Put map where it can be referred to easily;
43   "rural" ? what's this mean "life on the farm"?
50   me to review
57:        too medical clinical – suggest use "situations" for
"symptomology"

Respondent 3:

10.   specify if students should use "other" or their profession….

15.   Map shift + web link for vitual map
           Map would be better with state borders

17.   Location table – she overdid yrs/mths/weeks – tidy instructions;
           [Me: still use "rural" in tables?]

102.   "career boost: – "doesn't make sense?"

Respondents 4-9:

           5 more replies – all comments acted upon; no major changes
           needed.

Appendix C.7

Pilot 3: RNs ASH @ CRH: May 2013

V Brief presentation given to approx. 30 RNs attending bandaging skills course;

Upgraded survey included better job location finder and further clarifying in cover letter and Info sheet since previous run;

Approx. 24 survey forms taken at the door on way out after my presentation;

Typical Respondent Feedback:

Respondent 1:
Took 20 mins, nil VR work exper;

Item   Comment/feedback

81:       FIFO – didn't know what it meant;

118:     Is it a repeat?

120.   Didn't understand "work thru professional networks" ;

123   Me: should I put 123 re feeling well accepted in singular?

Respondent 2: *Experienced++ hosp RN*:

40.   I usually prefer routine to variety … modify "like me …unlike
                  me" to maybe "much prefer…don't prefer" ? …Try it and see?

108:       needs simplifying;

79:         " …there is no local schooling": confused by this: circled N/A but has
             school kids at high school - she should have interpreted it as eg
             "somewhat like me";

97:          Drop " when applicable" and say "circle only if no partner."? Try it.

108:        Change bracket to ("circle N/A if no contract");

111.   Support to get fully regd: write in bracket: ("Circle N/A if already
               fully registered").

127.   Needs clarifying to ensure that respondent means make self
               available *after hours*

Pilot 1:   V experienced RN ex top end , Centre:

Item 14:   Insert "Not applicable" option? [Done]
                 Colour code table p 4: clarify;

22:         Spell out FIFO/DIDO; …etc

Appendix C.8

Script Framework for first telephone contact in survey sample gathering:

Introduction and reminder of recent introductory email message where appropriate;
brief reference to my research role at Centre for Remote Health Alice Springs;
thanks for the time;
outline of why this particular agency is being approached;
very brief scope of study and background to it;
potential positive contributions that the findings could make to the human resource management issues around recruiting and retaining very remote and possibly remote practitioners;
cite time demand as per pilot trial findings – that is, usually between 15 and 25 minutes;
choices of delivery (net or hard copy);
guarantees of confidentiality and anonymity of staff and agency with regard to all item responses;
choices re receiving study feedback; offer more information via email if he/she needs to consider it before discussing with staff and /or
ask for best follow-up contact person with contact details. Thanks again.

Appendix C.9

Subject: Follow up email to in-principle approval to receive health practitioner motivation research (informal style used purposively):

Good afternoon (first name) – I'm assuming from your supervisor's [name] response to my inquiry about possibly approaching your clinical staff with a work motivations survey (link below), that this added info could be helpful. I know you are all flat out and emphasise that this research is aimed at developing a tool that should help enhance the recruitment, induction, support and retention processes with respect to very remote health staff in various ways.

The Information Sheet attached says a bit more.

If you are amenable and all is approved, I would provide a brief cover letter/intro, along with the link, that could simply be email forwarded to your team members. I could mail or drop in hard copies too but the link way is the easiest of course.

Feedback so far tells us that individual very remote staff (in particular) engage really well with the task and get something out of it. I've listed various other benefits (Info sheet and survey cover letter) to responding as well !

Having practised and managed health services in remote/very remote places across several decades, I'm aware of some of the challenges of winning and holding a committed team well matched to the job and who choose to stay for a useful period. The original title of the project was "Do you really need to be a missionary, mercenary or misfit to thrive in the bush?" ….The current more sober title recognises that many new motivations are emerging and are influential in various ways…and we need to know more about them.

I'm happy to give you a brief rundown on the project's progress in person, or a brief (5 minutes) PD input to staff, if you want.

With thanks for your time to date.

Mike Tyrrell *clinical psychologist and PhD student, Centre for Remote Health Alice Springs*

Link to survey: https://www.surveymonkey.com/s/HPMotivation

APPENDIX D

1. RELATING TO CHAPTER 6: THE SUBSCALES' RELIABILITIES AND VALIDITIES:

SCORE DISTRIBUTIONS OF SEVEN MEDIUM TO STRONGLY INTERNALLY RELIABLE SUBSCALES:

[NOTE: ALL FIGURES SHOWN IN APPENDIX D WERE PRODUCED USING SPSS V.19, PROGRAM ANALYZE→DESCRIPTIVE STATTSTICS→EXPLORE (IBM.SPSS V19, ARMONK NY 2010)]

Intercultural Interests

Histogram

Mean = 22.79
Std. Dev. = 4.846
N = 454

Normal Q-Q Plot of Pref ways work.inter culturals

Detrended Normal Q-Q Plot of Pref ways work.inter culturals
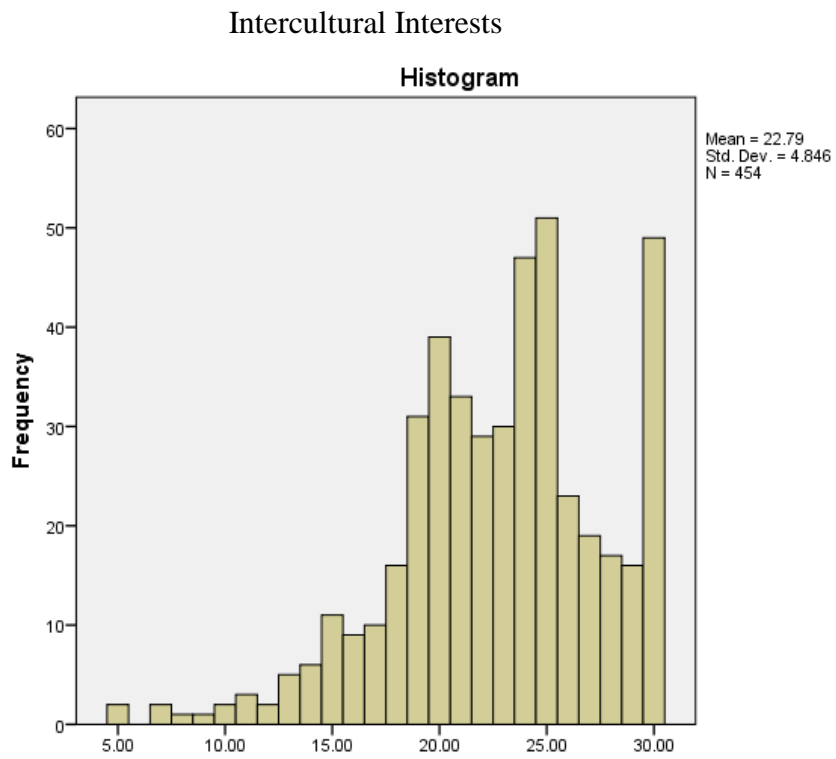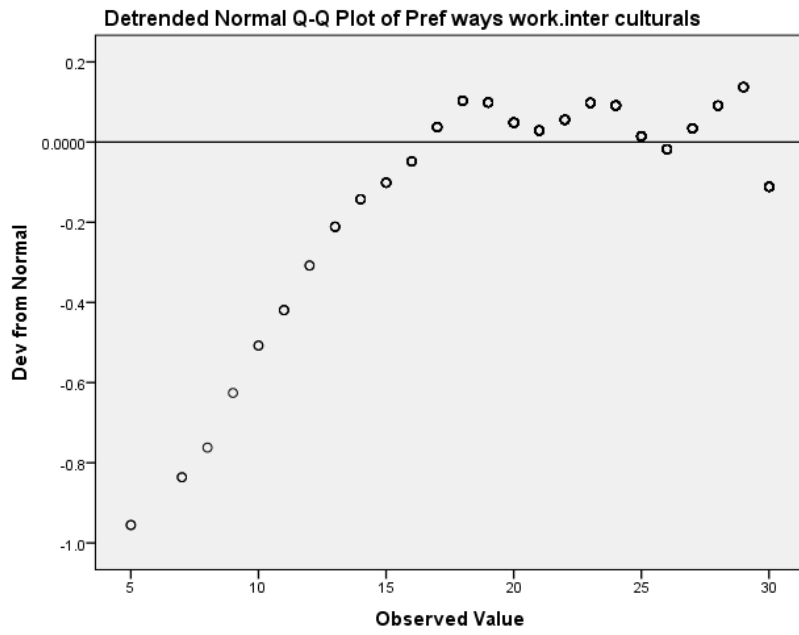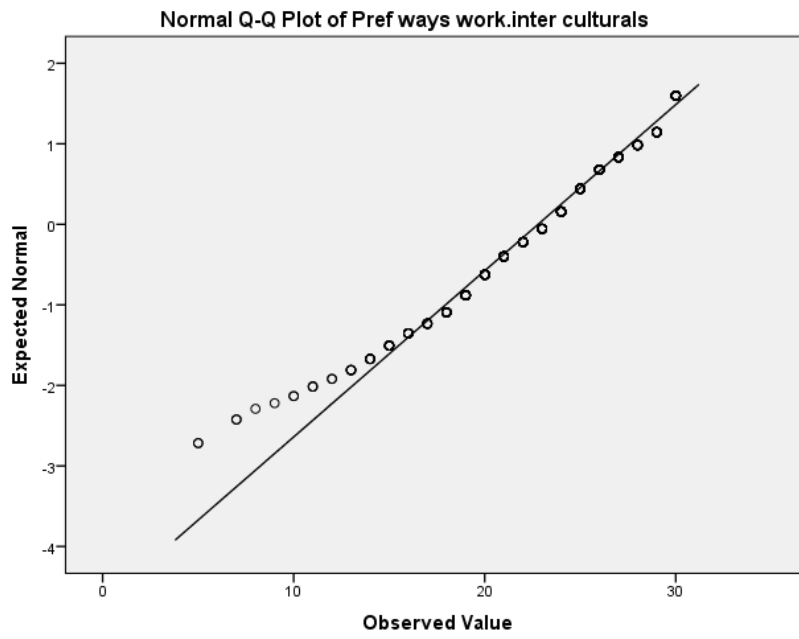
Clinical self-containment
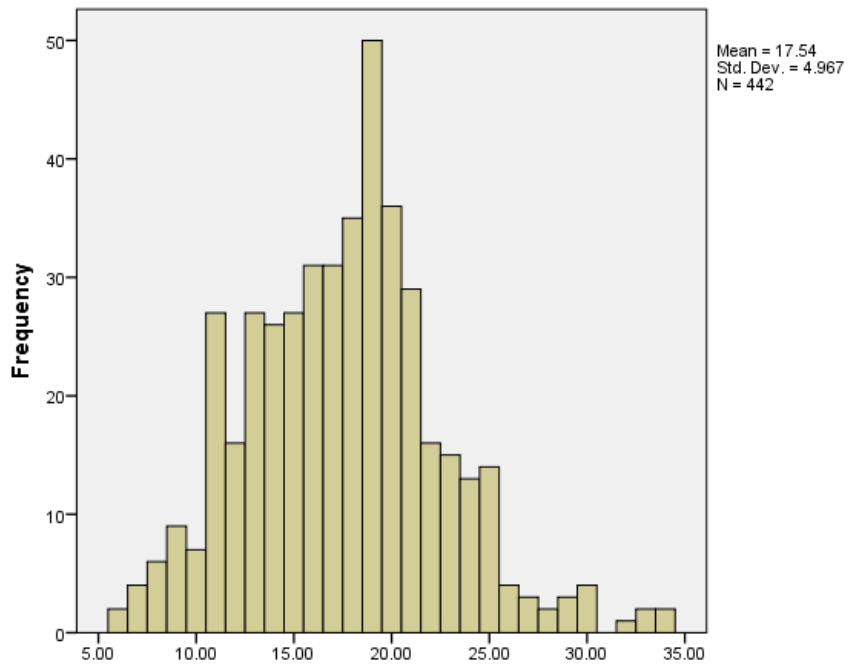
Clinical self-containment total scale score distribution

Clinical self-containment (cont)

Detrended Normal Q-Q Plot of Total clin self containment

FINANCIAL INTERESTS

Mean = 28.58
Std. Dev. = 8.267
N = 408
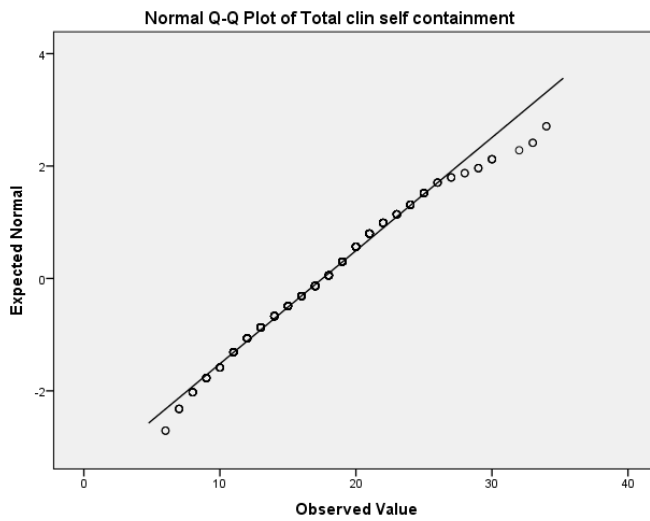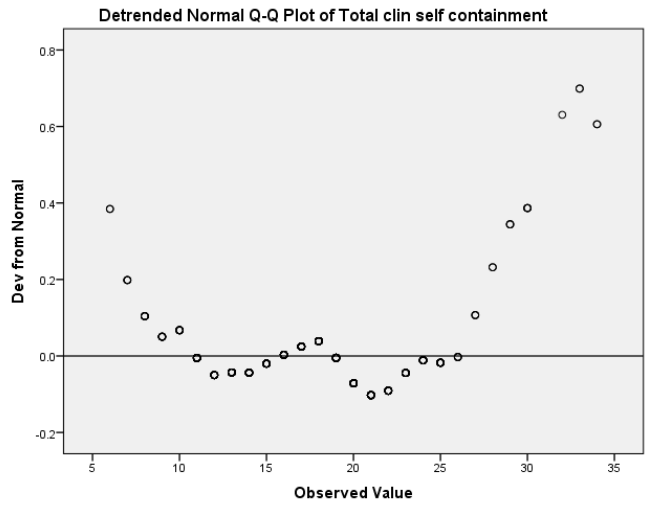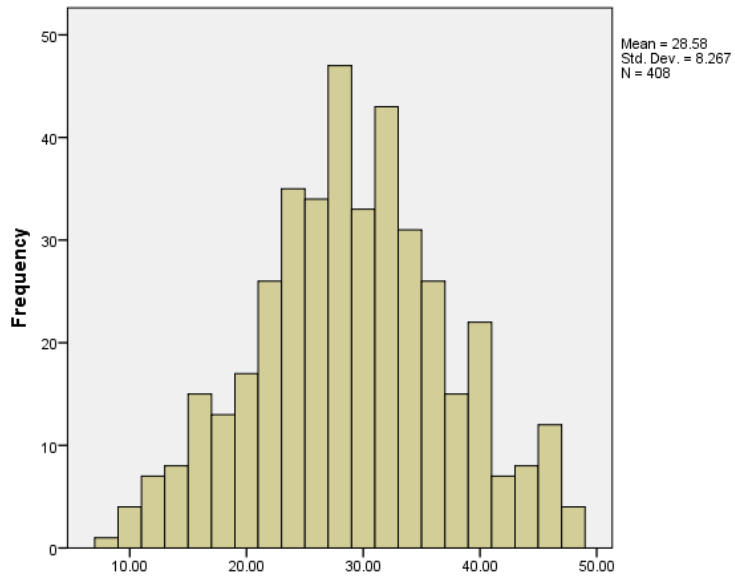
Financial interests: score distribution

Normal Q-Q Plot of total Monetary

Detrended Normal Q-Q Plot of total Monetary

COMPASSION

Mean = 38.99
Std. Dev. = 6.02
N = 437
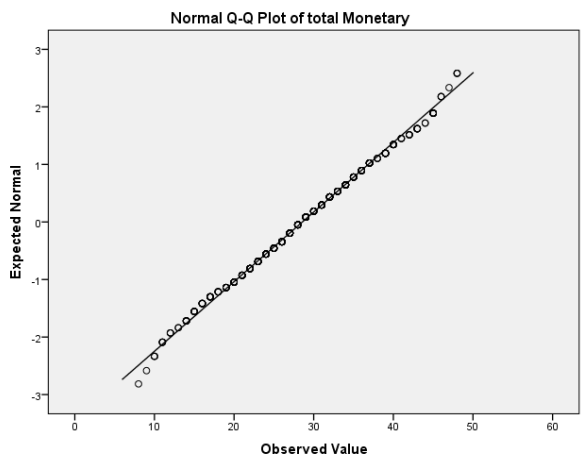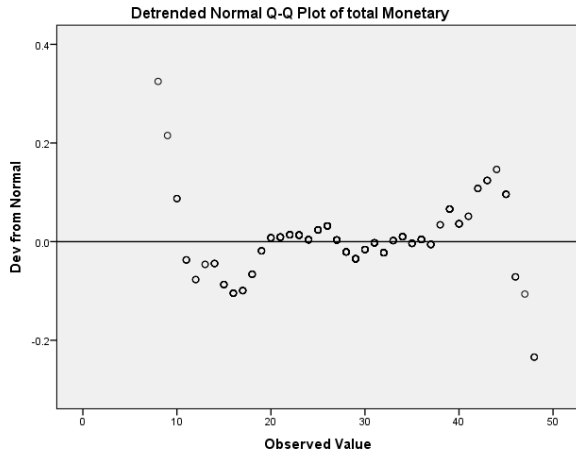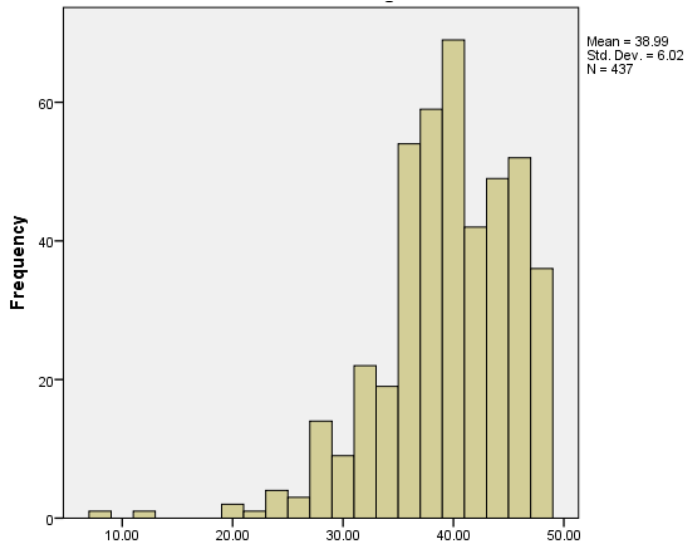
Compassion score distribution

Normal Q-Q Plot of Comp.8i

Detrended Normal Q-Q Plot of Comp.8i

CHALLENGER SEEKER

Mean = 16.16
Std. Dev. = 3.446
N = 455
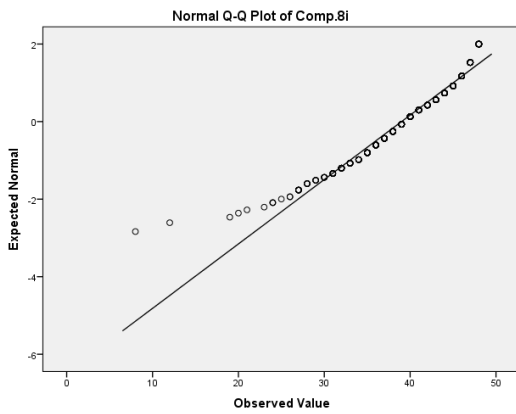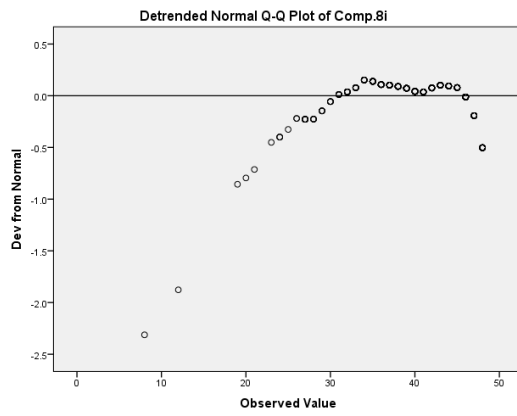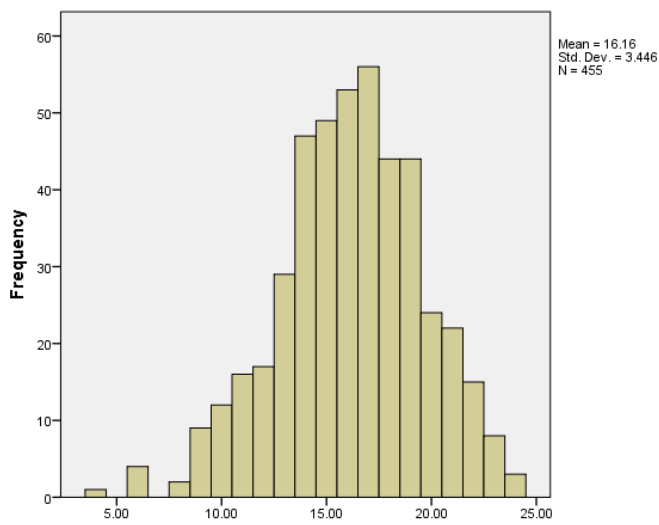
Challenger seeker score distribution

Normal Q-Q Plot of Stimulation1.challenge seeker

Detrended Normal Q-Q Plot of Stimulation1.challenge seeker

PERSONAL DEMAND PREFERENCES

Mean = 20.09
Std. Dev. = 4.448
N = 433

Normal Q-Q Plot of Pref ways work 2.engagement

Detrended Normal Q-Q Plot of Pref ways work 2.engagement

PRIMARY HEALTH CARE ORIENTATION

Mean = 34.89
Std. Dev. = 6.083
N = 417
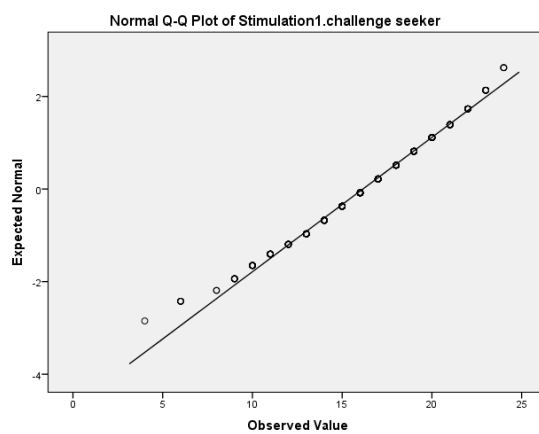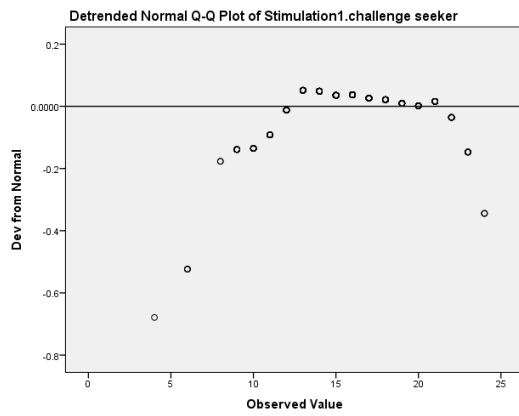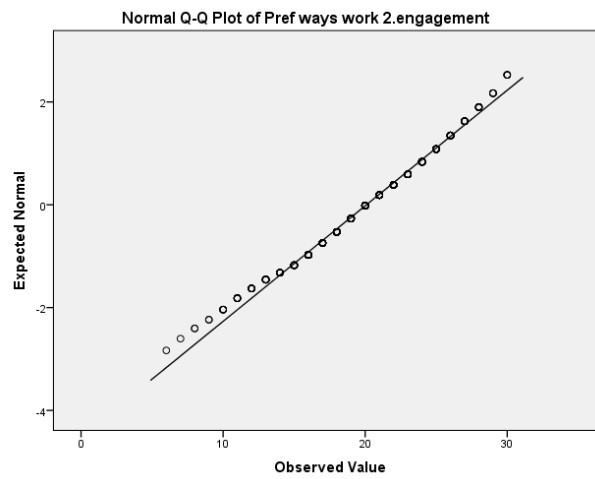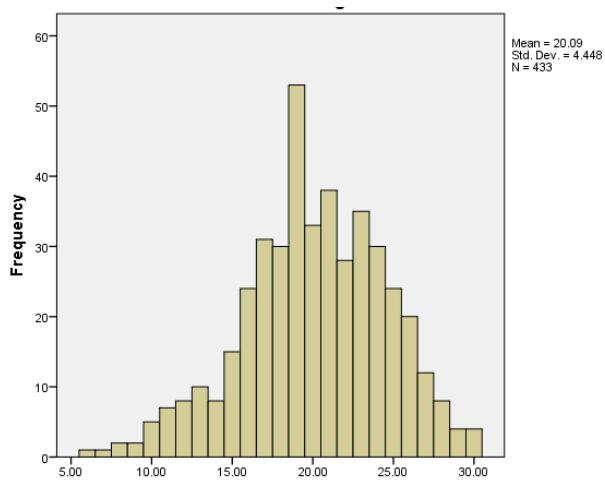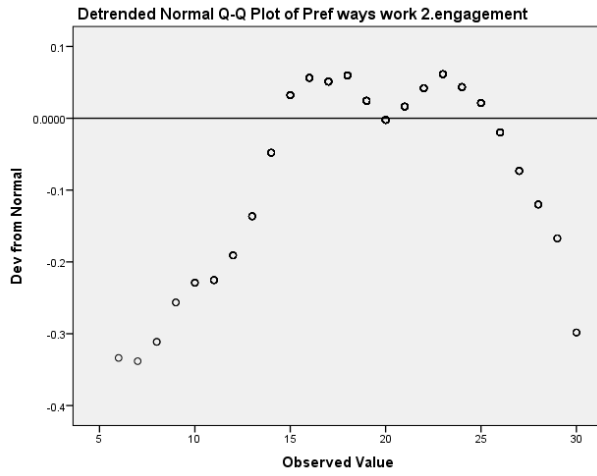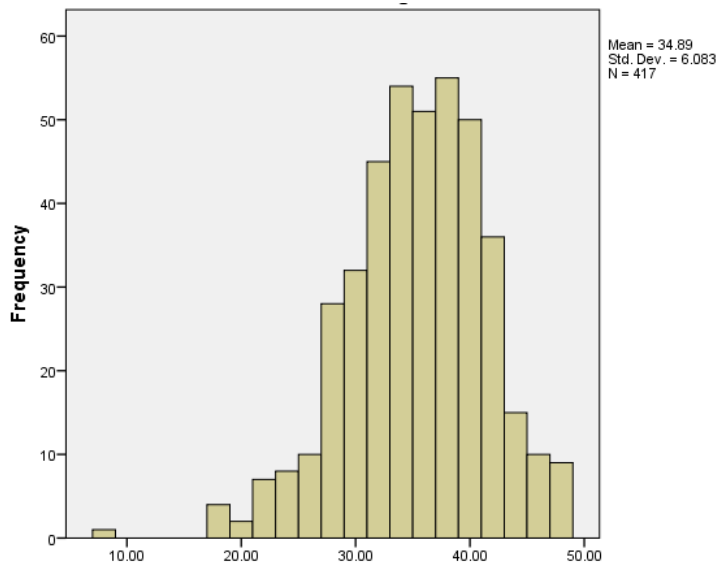
PHC Orientation score distribution

Normal Q-Q Plot of Pref ways work 3.PrimHealthOrientation

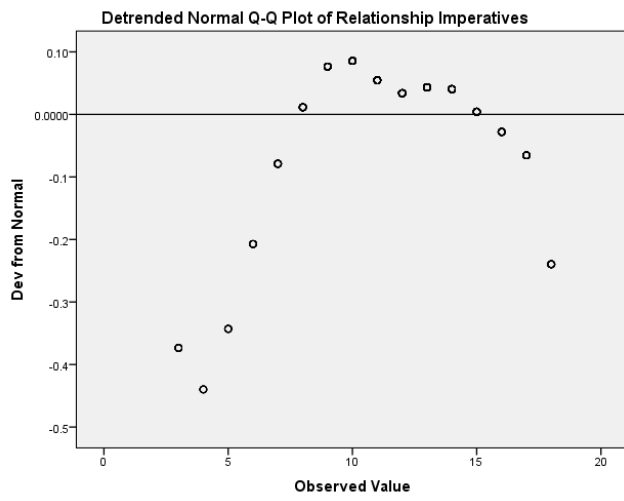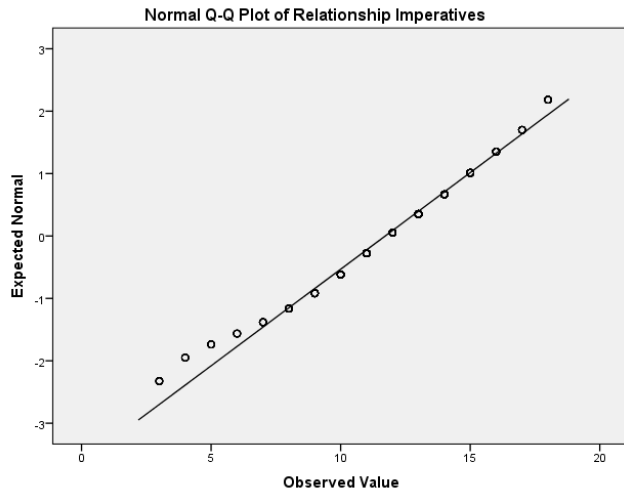Detrended Normal Q-Q Plot of Pref ways work 3.PrimHealthOrientation
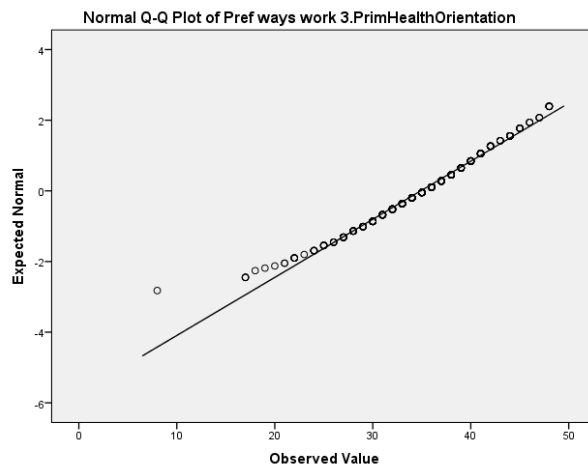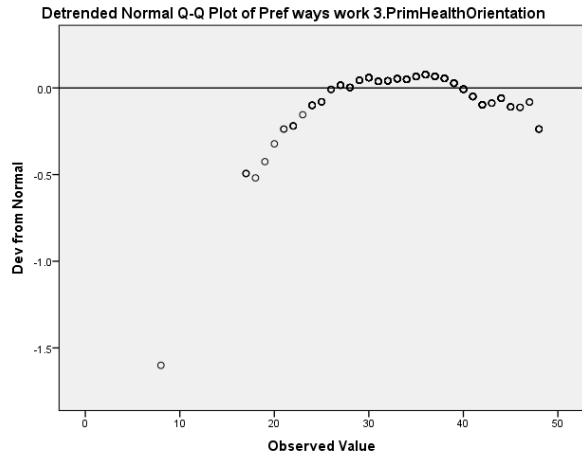
2. SEVEN MODERATELY INTERNALLY RELIABLE SCALES (ALPHA .65 - .70; INTER ITEM CORRELATION > .3; OR, ALPHA .60 - .65; INTER-ITEM CORRELATION ≥ .35); (RE CHAPTER 6) IMAGES COURTESY SPSS VERSION 19.
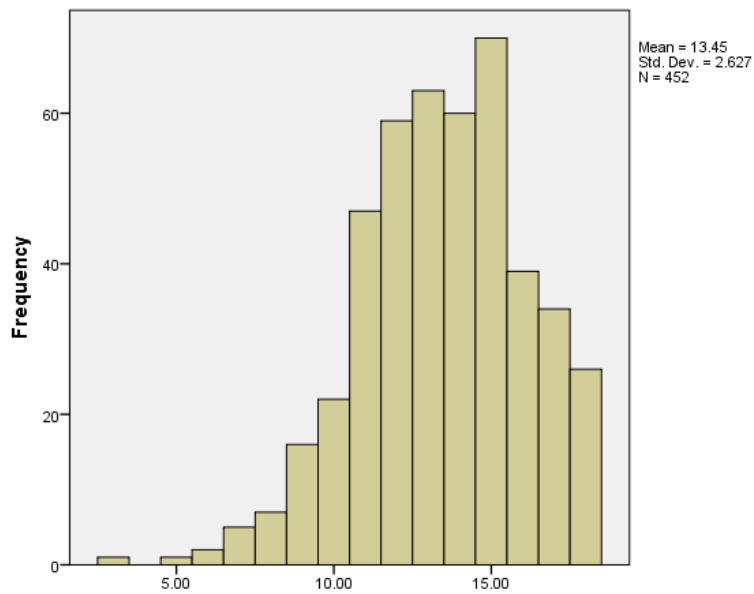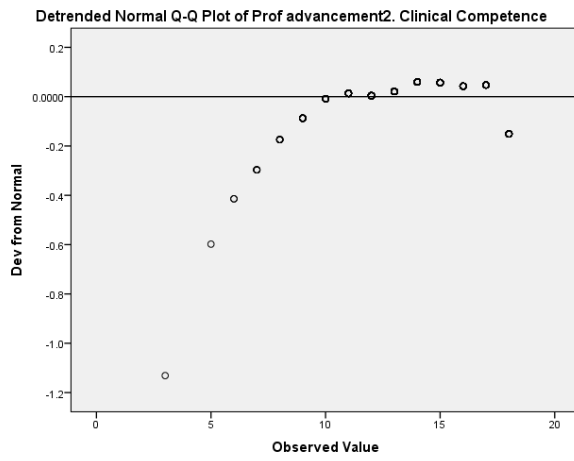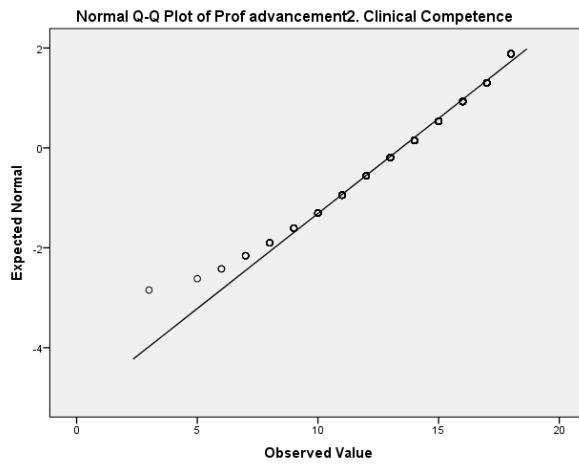
RELATIONSHIP IMPERATIVES

Mean = 11.72
Std. Dev. = 3.23
N = 448
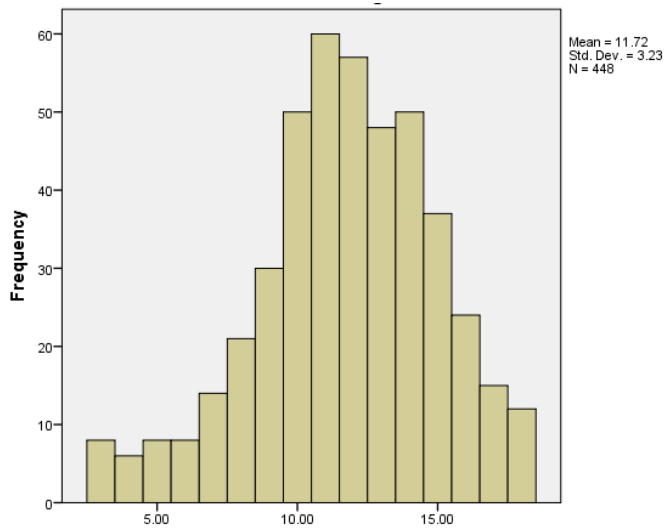
Relationship imperatives score distribution

Normal Q-Q Plot of Relationship Imperatives

Detrended Normal Q-Q Plot of Relationship Imperatives

CLINICAL COMPETENCE

Mean = 13.45
Std. Dev. = 2.627
N = 452

Clinical Competence score distribution

Normal Q-Q Plot of Prof advancement2. Clinical Competence

Detrended Normal Q-Q Plot of Prof advancement2. Clinical Competence

LIFESTYLE

Lifestyle: score distribution

Mean = 11.96
Std. Dev. = 1.709
N = 447

Normal Q-Q Plot of Lifestyle envt.Lifestyle 3i ss

Detrended Normal Q-Q Plot of Lifestyle envt.Lifestyle 3i ss
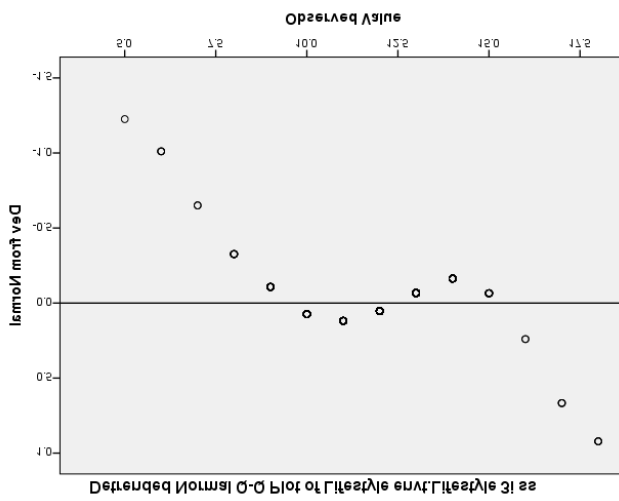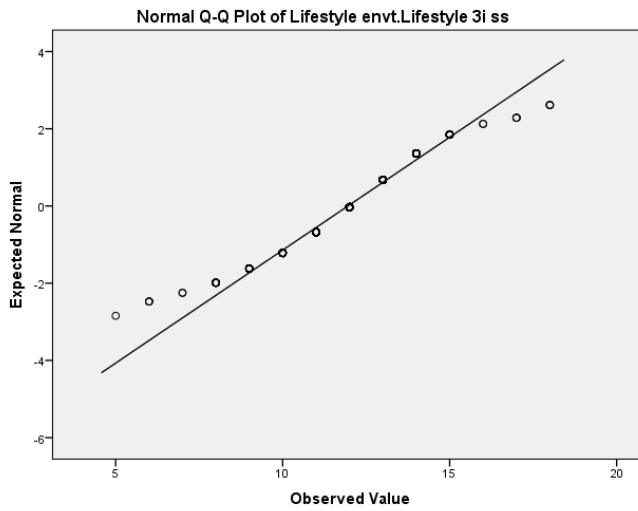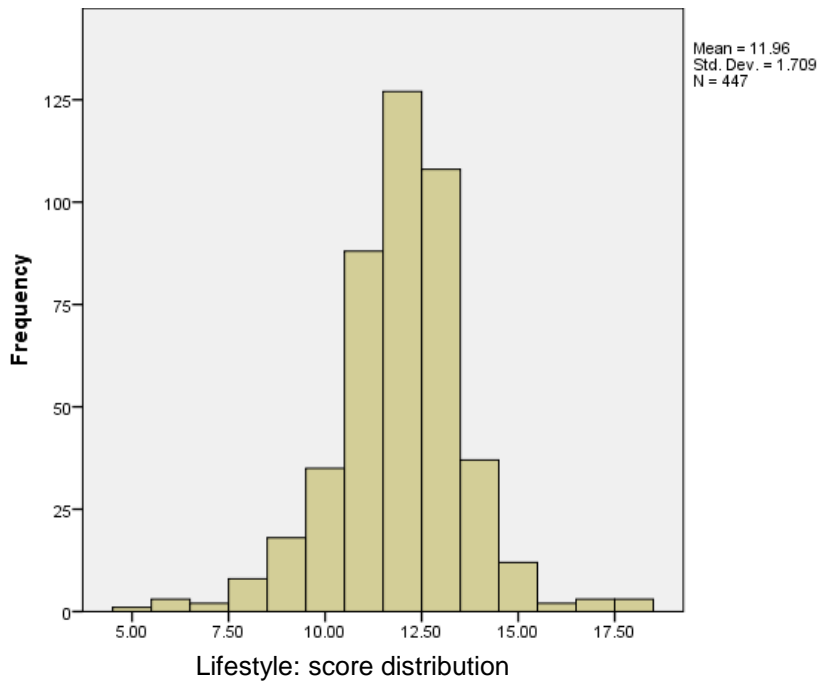
PREFERRED LIVING LOCATION
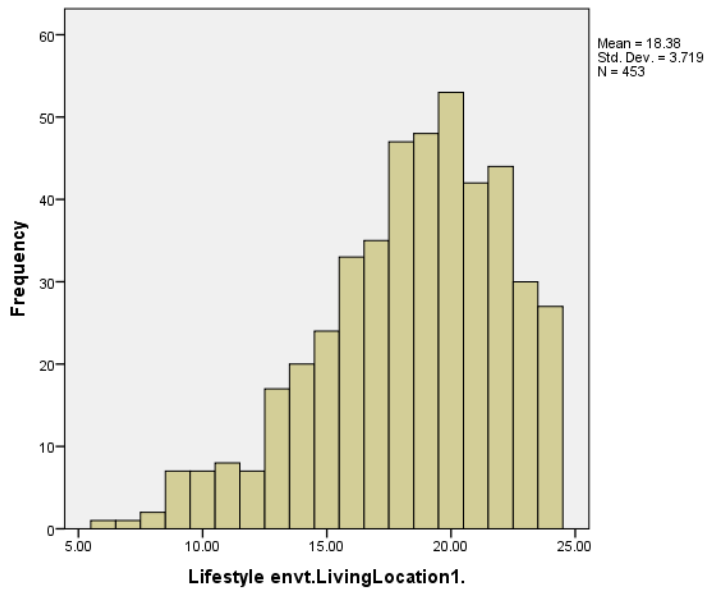
Preferred Living location score distribution
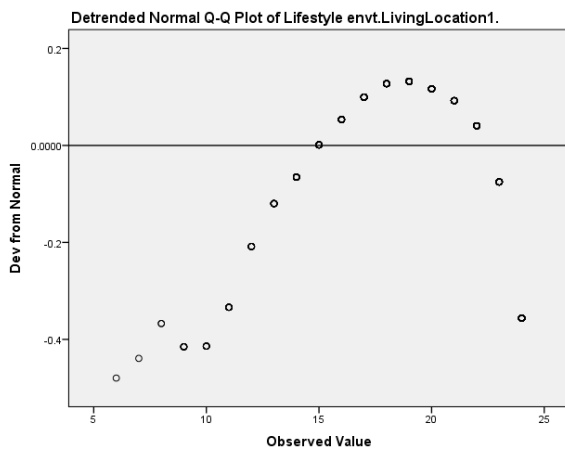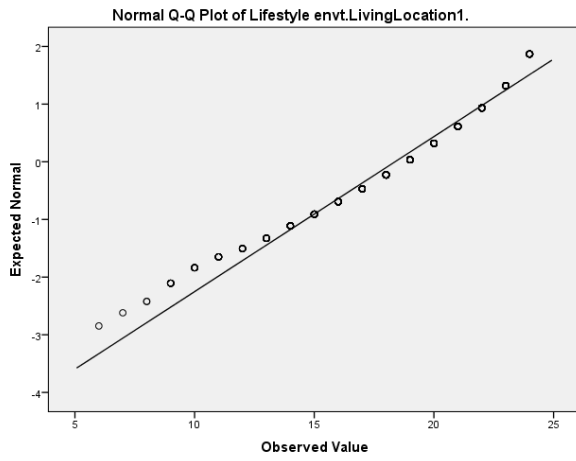
AVOIDANCE NEEDS
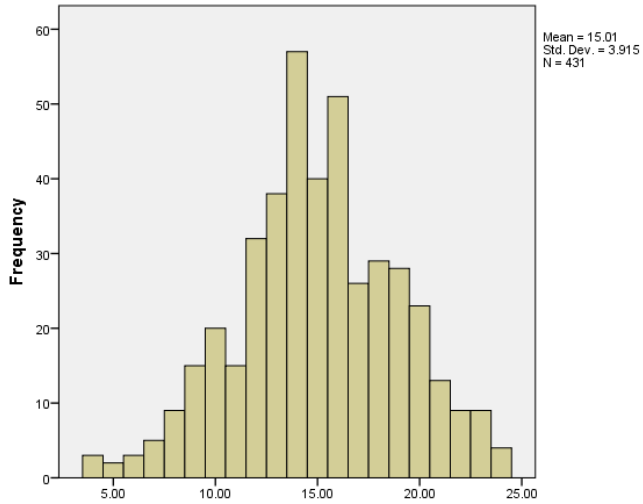
Avoidance Needs score distribution
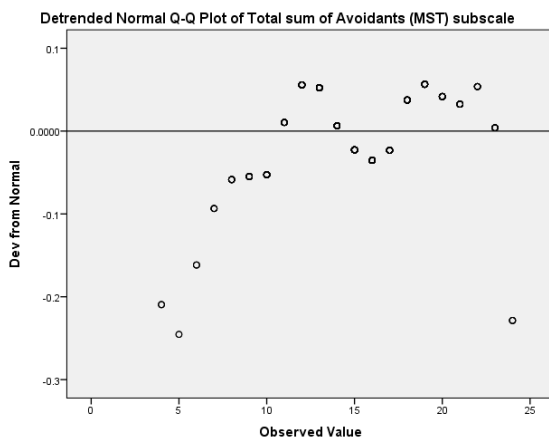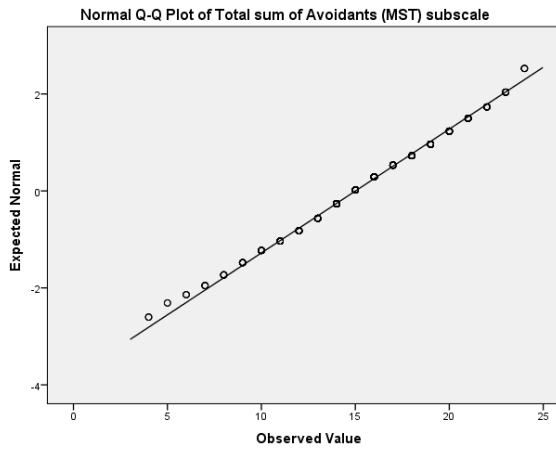
SPIRITUAL BELIEFS
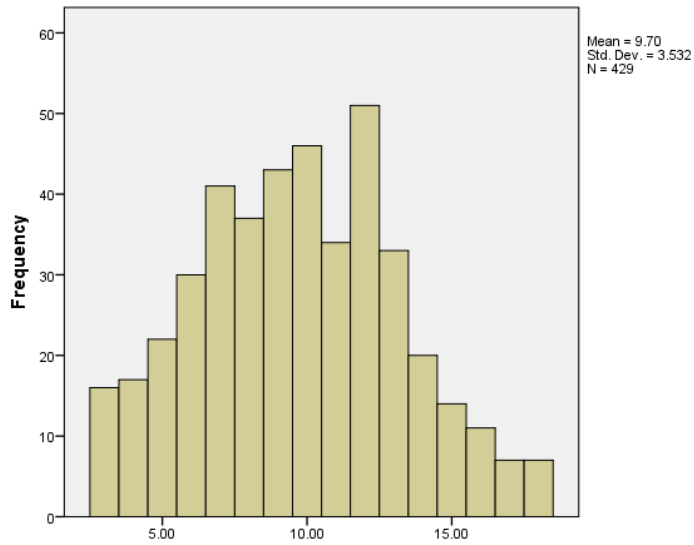
Spiritual Beliefs score distribution

Mean = 9.70
Std. Dev. = 3.532
N = 429

Normal Q-Q Plot of spiritual belief

Detrended Normal Q-Q Plot of spiritual belief

BELONGING NEEDS

Mean = 24.00
Std. Dev. = 3.336
N = 444
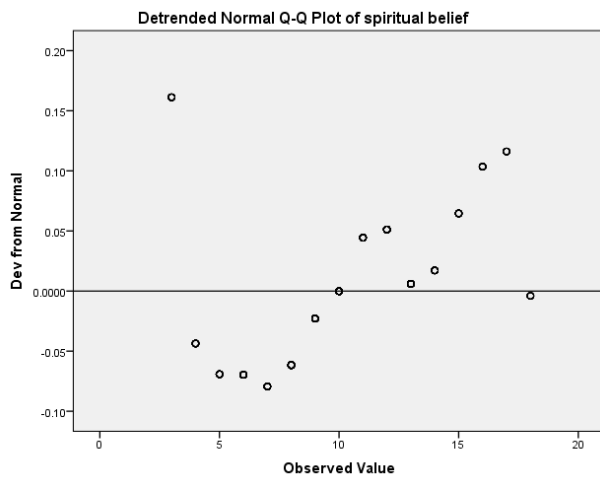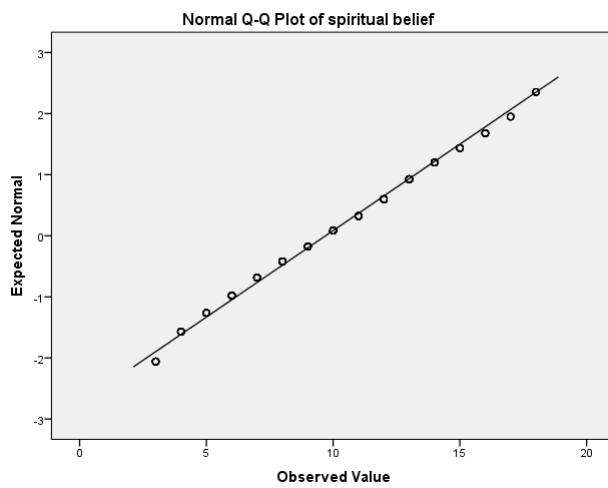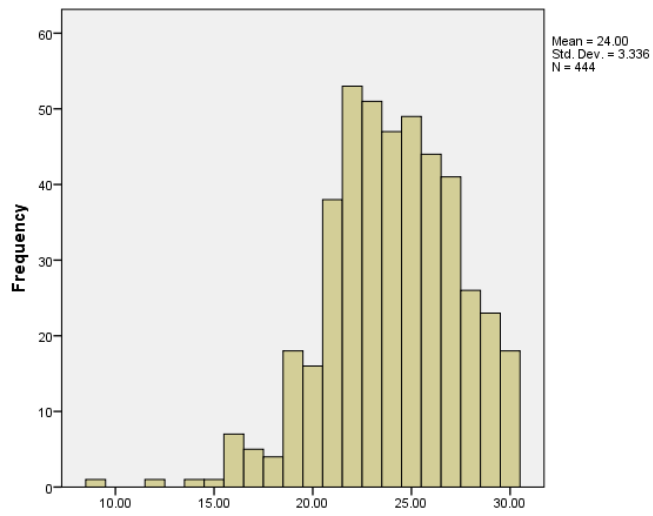
Belonging Needs score distribution
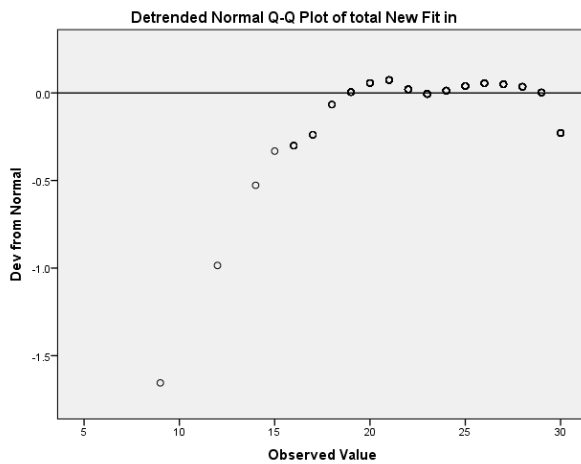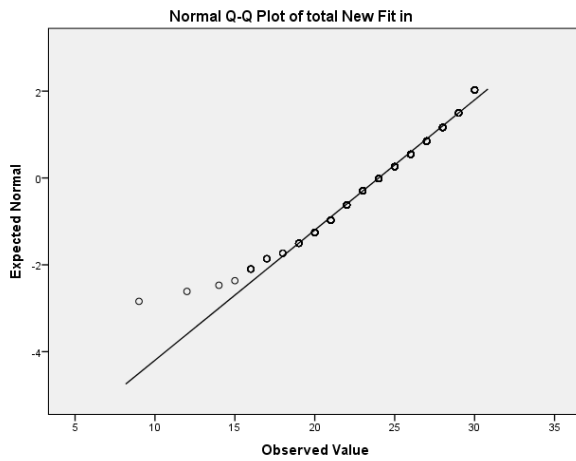
Normal Q-Q Plot of total New Fit in

Detrended Normal Q-Q Plot of total New Fit in

VARIETY SEEKER

Variety seeker: score distribution
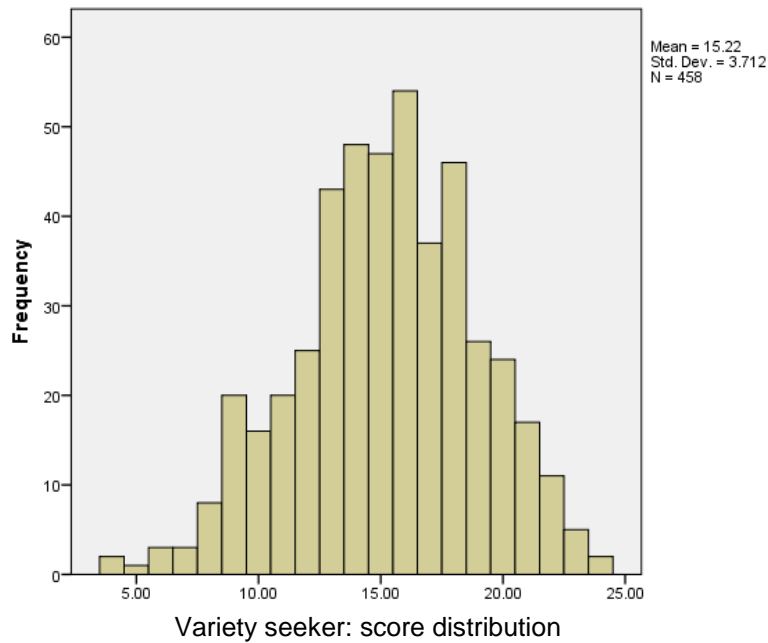
Q-Q plots are not available for Variety Seeker, but its approximately normal distribution is evident from the above histogram.

CAREER BUILDER

Career builder score distribution

Normal Q-Q Plot of Prof advancement1. Career Building

Detrended Normal Q-Q Plot of Prof advancement1. Career Building

MANAGERIAL SELF CONFIDENCE

Mean = 16.29
Std. Dev. = 3.22
N = 450

Managerial self confidence: score distribution

Normal Q-Q Plot of tAutomanagerial

Detrended Normal Q-Q Plot of tAutomanagerial
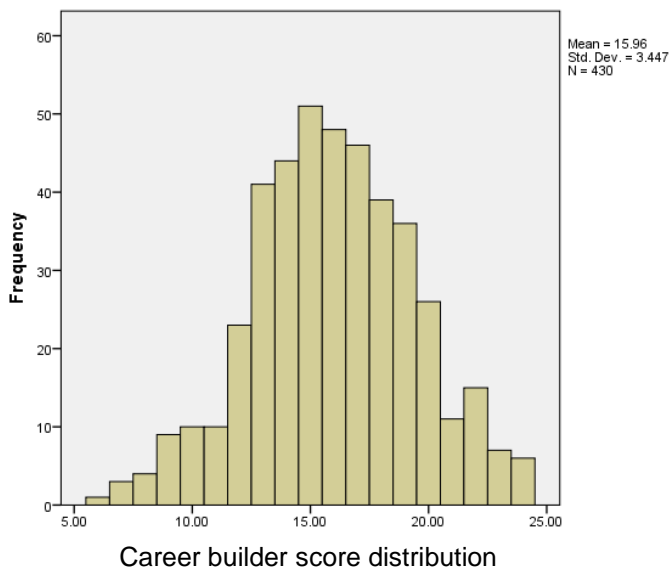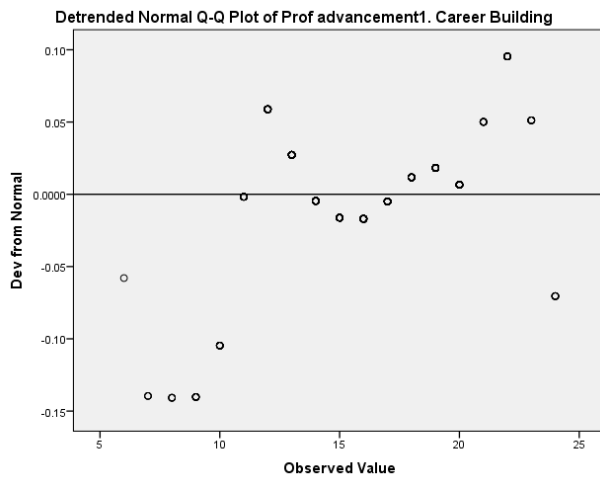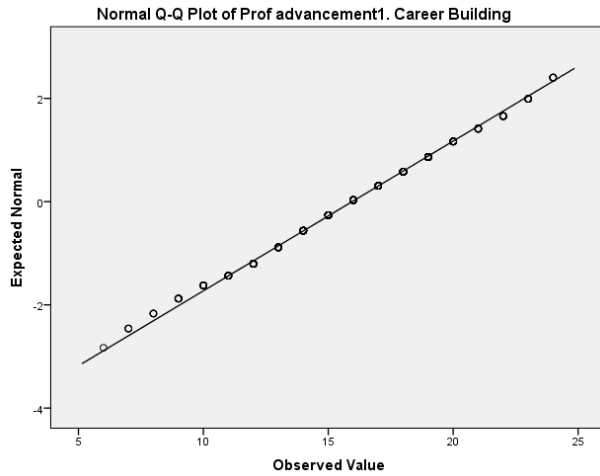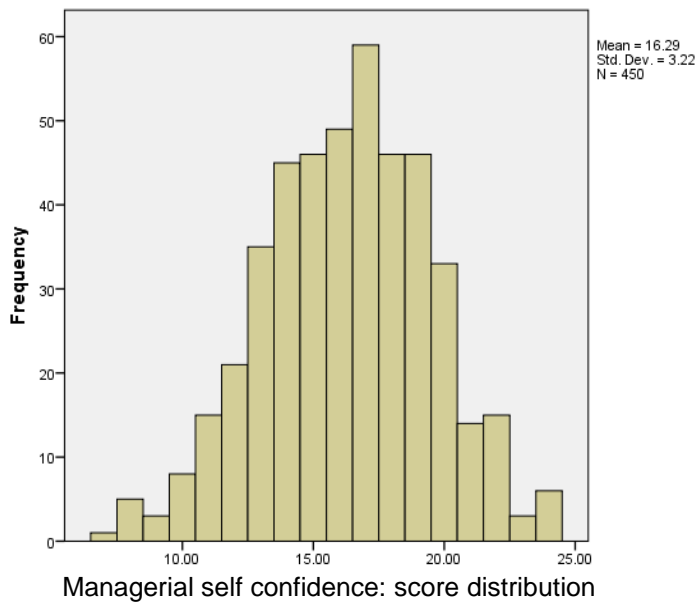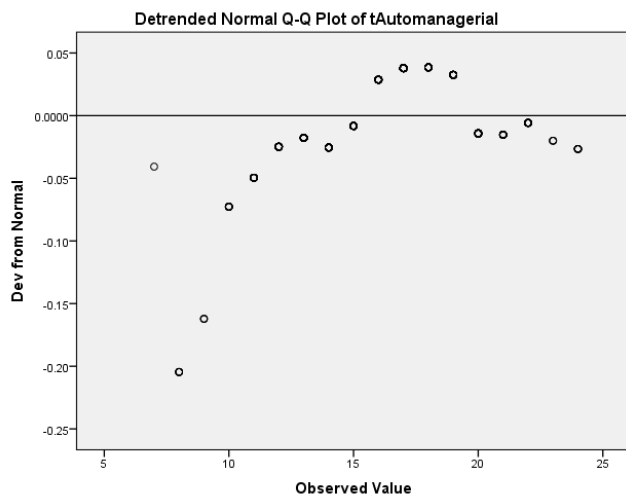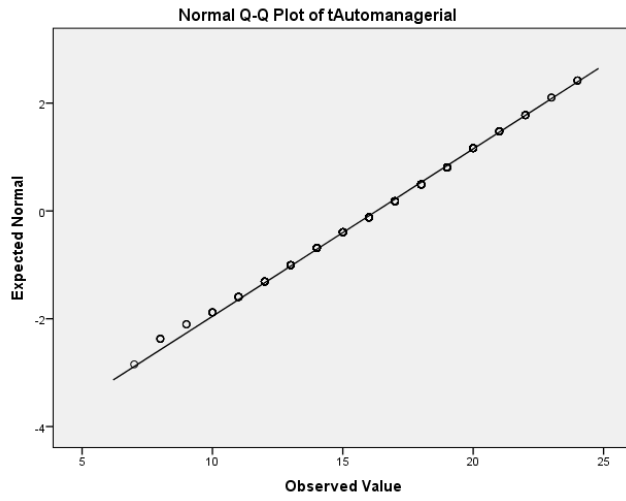
APPENDIX E

Table E.1

MWU analysis ranking results for 14 subscales and the variable VRI 3yrs/ No VRI .

Subscale		N	Mean Rank	Sum of Ranks
Relationship Imperatives	.00	257	192.77	49542.50
	1.00	85	107.18	9110.50
	Total	342		
Clinical Competence seeking	.00	258	167.43	43196.00
	1.00	86	187.72	16144.00
	Total	344		
PHC orientation	.00	240	158.63	38072.00
	1.00	78	162.17	12649.00
	Total	318		
Personal Demand Preferences	.00	243	156.62	38059.50
	1.00	86	188.67	16225.50
	Total	329		
Intercultural interests	.00	260	160.94	41844.00
	1.00	85	209.89	17841.00
	Total	345		
Lifestyle	.00	258	179.40	46285.00
	1.00	83	144.89	12026.00
	Total	341		
Living Location	.00	258	158.01	40765.50
	1.00	87	217.47	18919.50
	Total	345		
Clinical self containment	.00	254	155.10	39395.00
	1.00	84	213.05	17896.00
	Total	338		
Avoidance needs	.00	248	163.98	40666.50
	1.00	83	172.04	14279.50
	Total	331		
Belonging needs	.00	256	174.43	44654.50
	1.00	84	158.52	13315.50
	Total	340		
Financial interests	.00	238	160.15	38116.50
	1.00	75	146.99	11024.50
	Total	313		
Challenge seeker	.00	260	164.18	42687.00
	1.00	86	201.67	17344.00
	Total	346		
Compassion	.00	251	171.73	43104.00
	1.00	83	154.71	12841.00
	Total	334		
Spiritual Belief	.00	245	169.85	41613.00
	1.00	84	150.86	12672.00
	Total	329		

Table E.2

Spearman's ρ correlations between eight subscales responsive to Very Remote work variables of interest

Subscale		Relationship Imperatives	Lifestyle	Clinical self containment	Inter-cultural Interests	Personal Demand Prefs	Challenge seeker	Clinical Competence Seeker	Living Location prefs.
Relationship Imperatives	Correlation Coefficient	1.000	.105*	-.311**	-.155**	-.256**	-.239**	-.115*	-.304**
	Sig. (2-tailed)	.	.028	.000	.001	.000	.000	.016	.000
	N	448	438	435	441	429	440	440	442
Lifestyle	Correlation Coefficient		1.000	-.269**	.166**	-.059	.121*	.054	.081
	Sig. (2-tailed)		.	.000	.000	.222	.011	.256	.088
	N		447	433	442	425	439	439	442
Clinical self containment	Correlation Coefficient			1.000	-.038	.407**	.094	.141**	.294**
	Sig. (2-tailed)			.	.431	.000	.051	.003	.000
	N			442	435	423	434	433	438
Intercultural Interests	Correlation Coefficient				1.000	.274**	.338**	.146**	.314**
	Sig. (2-tailed)				.	.000	.000	.002	.000
	N				454	427	446	446	446
Personal Demand Prefs	Correlation Coefficient					1.000	.270**	.271**	.476**
	Sig. (2-tailed)					.	.000	.000	.000
	N					433	425	426	428
Challenge seeker	Correlation Coefficient						1.000	.299**	.337**
	Sig. (2-tailed)						.	.000	.000
	N						455	444	445
Clinical Competence	Correlation Coefficient							1.000	.271**
	Sig. (2-tailed)							.	.000
	N							452	444
Living Location Prefs.	Correlation Coefficient								1.000
	Sig. (2-tailed)								.
	N								453

* Correlation is significant at p ≤ 0.5 1(2-tailed); ** Correlation is significant at p ≤0.01 (2-tailed).

APPENDIX F

Table F.1

14 Subscales: Inter-correlations and Collinearity

Subscale	Correlations			Collinearity Statistics	
	Zero order	Partial	Part	Tolerance	VIF
Compassion	.00	-.09	-.08	.35	2.86
Relationship Imperatives	-.42	-.30	-.27	.70	1.43
Clinical Competence	.08	-.01	-.01	.70	1.43
	.09	.15	.12	.40	2.51

PHC Orientation					
Personal demand preference	.19	-.01	-.01	.53	1.90
Inter cultural Interests	.24	.16	.14	.52	1.93
Lifestyle	-.12	-.14	-.12	.84	1.19
Living Location	.32	.11	.09	.55	1.81
Clinical self containment	.27	.16	.14	.56	1.78
Avoidance needs	.06	-.10	-.08	.67	1.49
Belonging needs	-.04	-.03	-.03	.43	2.33
Financial interests	-.06	.04	.04	.74	1.36
Challenge seeker	.21	-.01	-.01	.64	1.57
Spiritual beliefs	-.04	.06	.05	.67	1.50

Table F2 *Eight subscales: Inter-correlations and Collinearity*

Subscale		Correlations			Collinearity Statistics	
		Zero-order	Partial	Part	Tolerance	VIF
	Compassion	-.11	-.16	-.14	.61	1.65
	Relationship Imperatives	-.38	-.24	-.21	.78	1.29
	Intercultural interests	.19	.22	.19	.60	1.67
1	Personal demand preferences	.14	-.08	-.07	.66	1.53
	Lifestyle	-.16	-.13	-.12	.86	1.16
	Living Location	.26	.12	.10	.65	1.55
	Clinical self containment	.25	.09	.08	.65	1.55
	Challenge seeker	.16	.06	.05	.79	1.27

Table F3 *Age distribution and VRI work experience obtained from HPMS*

Practitioner Age range	VRI 3yrs+		No VRI		VRI Variable Total		HPMS Total	
	N	%	N	%	N	%	N	%
20-30 yrs	2	2.1	57	18.8	59	14.8	83	15.2
31-40 yrs	11	11.5	59	19.5	70	17.5	94	17.2
41-50 yrs	25	26.0	75	24.7	100	25.1	133	24.3
51-60 yrs	44	45.8	75	24.8	119	29.8	173	31.6
0ver 60 yrs	14	14.6	37	12.2	51	12.8	64	11.7
Total	96	100.0	303	100.0	399	100.0	547	100.0

Table F4 *Seven categorical dichotomous variables of interest: four demographic and three professional IVs*

Dichotomous Variable			n
RuralExper	No	.00	160
	Yes	1.00	152
Age	<50y	.00	185
	≥ 50y	1.00	127
Prof. med/ahp/othr		.00	156
	RN	1.00	156
Children:	No	.00	128
	Yes	1.00	184
Partner:	No	.00	82
	Yes	1.00	230
Aus trained	No	.00	45
	Yes	1.00	267
Gender	Fem	.00	245
	Male	1.00	67

Table F 8.3.2

Correct class'n allocation: 75.6%

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	106.698	13	.000
	Block	106.698	13	.000
	Model	106.698	13	.000

Table F 8.3.3

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	239.736[a]	.290	.432

a. Estimation terminated at iteration number 6 because parameter estimates changed by less than .001.

Table F 8.3.4

Hosmer and Lemeshow Test

Step	Chi-square	Df	Sig.
1	6.370	8	.606

Correct classification : 84.0%

Table F 8.3.5

Logistic regression with seven categorical variables and 6 subscales:

Variables in the Equation

		B	S.E.	Wald	Df	Sig.	Exp(B)	95% C.I.for EXP(B) Lower	Upper
Step 1ᵃ	Gender	**1.178**	**.399**	**8.703**	**1**	**.003**	**3.246**	**1.485**	**7.099**
	Age <50 ≥50	.299	.367	.664	1	.415	1.349	.657	2.772
	Prof RN Med/AH	**1.415**	**.380**	**13.895**	**1**	**.000**	**4.116**	**1.956**	**8.661**
	Children.No/yes	.143	.390	.135	1	.713	1.154	.537	2.479
	partnern. No Yes	-.028	.401	.005	1	.945	.972	.443	2.135
	Austrained No/ Yes	-.053	.473	.012	1	.911	.949	.375	2.397
	Ruralexp'nce Nil/ some	.562	.367	2.350	1	.125	1.754	.855	3.598
	Rel'nship Imps	**-.210**	**.065**	**10.515**	**1**	**.001**	**.811**	**.714**	**.920**
	Intercult Ints	**.156**	**.044**	**12.381**	**1**	**.000**	**1.169**	**1.072**	**1.276**
	LifeStyle	**-.261**	**.107**	**5.904**	**1**	**.015**	**.770**	**.624**	**.951**
	LivingLoc'n Prefs	.058	.056	1.072	1	.300	1.060	.949	1.184
	Clin Self Cont't	**.085**	**.039**	**4.697**	**1**	**.030**	**1.089**	**1.008**	**1.176**
	Challenge	.000	.055	.000	1	.995	1.000	.898	1.113
	Constant	-3.595	2.024	3.153	1	.076	.027		

Table F 8.3.6

Final model: Logistic regression with the 6 significant variables from above table.

Case Processing Summary

Unweighted Casesᵃ		N	Percent
Selected Cases	Included in Analysis	323	59.0
	Missing Cases	224	41.0
	Total	547	100.0
Unselected Cases		0	.0
Total		547	100.0

a. If weight is in effect, see classification table for the total number of cases.

Correct classification (initial estimate) : VRI3yrs+/No VRI : 75.9%

Table F.8.3.7

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	101.159	6	.000
	Block	101.159	6	.000
	Model	101.159	6	.000

Table F.8.3.8

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	255.941[a]	.269	.402

Table F.8.3.9

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	5.638	8	.688

Correct classification VRI3yrs+/No VRI 83.0%

Table F.8.3.10

Final: 6 Independent Variables model

Variable	Wald	OR	95% C.I.for OR Lower	95% C.I.for OR Upper	P
Relationship Imperatives	18.46	.80	.72	.88	.001
Intercultural interests	16.87	1.17	1.09	1.27	.001
Lifestyle	5.06	.80	.66	.97	.024
Clinical self containment	5.50	1.09	1.01	1.16	.019
Gender	9.71	3.26	1.55	6.84	.002
Profession	17.14	4.13	2.11	8.09	.001
Constant	1.69	.10			.193