Let's Talk About Safer Sex: An analysis to inform a safer sex intervention using the Theory of Planned Behaviour (TPB)

By

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LIST OF ABBREVIATIONS

ABS	Australian Bureau of Statistics
ACARA	Australian Curriculum Assessment and Reporting Authority
ACON	AIDS Council of New South Wales
AIDS	Acquired Immunodeficiency Syndrome
AIHW	Australian Institute of Health and Welfare
Alpha (α)	Cronbach's Alpha
AUD	Australian Dollar
AVE	Average Variance Extract
BBVs	Blood Borne Viruses
Beta	Standardised Coefficients
CDC	Centers for Disease Control and Prevention
CDCB	Communicable Disease Control Branch
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
χ^2	Chi-square
Coeff H	Coefficient H
FIML	Full Information Maximum Likelihood
FML	Full Maximum Likelihood
EFA	Exploratory Factor Analysis
GP	General Practitioner
HIV	Human Immunodeficiency Virus

HIV PEP	HIV Post Exposure Prophylaxis Hotline
HMB	Health Model Beliefs
HPV	Human Papillomavirus
IMBP	Integrative Model of Behavioural Prediction
ISS	Intention for Safer Sex
IUD	Intra-Uterine Device
KMO	Kaiser–Meyer–Olkin
MITIOG	Made in the Image of God
MSM	Men who have Sex with Men
LGBTIQ	Lesbian, Gay, Bisexual, Transgender, Intersex, or Questioning
p	p-value
PAA	Principal Axis Analysis
PBC	Perceived Behavioural Control
PCA	Principal Components Analysis
RMSEA	Root Mean Square Error of Approximation
RMSR	Root Mean Square Residual
SA	South Australia
SAHMRI	South Australian Health and Medical Research Institute
SA MESH	SA Mobilization and Empowerment for Sexual Health
SEM	Structural Equation Modelling
SHASI	Sexual Health and Awareness Study Instrument
SHine SA	Sexual Health Information Networking and Education South Australia
SN	Subjective Norms

SPSS	Statistical Package for the Social Sciences
SRE	Sexuality and Relationship Education
SRH	Sexual and Reproductive Health
SRS	Sexual Risk Scale
SSUEM	Safer Sex Use Extended (TPB) Model
STD	Sexually Transmitted Disease
STIs	Sexually Transmitted Infections
TLI	Tucker-Lewis Index
TPB	Theory of Planned Behaviour
TRA	Theory of Reasoned Action
UN	United Nation
UNAIDS	United Nations Programme on HIV/AIDS
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFPA	United Nations Fund for Population Activities
UNICEF	United Nations International Children's Emergency Fund
US	United States
WHO	World Health Organization
WSW	Women Who have Sex with Women

ABSTRACT

According to the South Australian Department for Health and Wellbeing (SA Health) data (2019a), the rates of STIs in South Australia (SA) were on the rise, especially among young people aged 18–24 years. Similarly, the rates of unplanned pregnancy notifications have been alarming among this age group (SA Health, 2020). A recent South Australian sexual health report revealed that the majority of South Australian young people (aged 16–29 years) had not been consistently practising safer sex use (Ward & Elliott, 2019). However, little is known about the predictors of safer sex behaviour among South Australian young people to enable the design of a safer sex intervention. This research sought to inform health investigators about factors that should be considered for possible safer sex interventions to increase the rates of consistent safer sex use among young people. Previous studies considered the Theory of Planned Behaviour (TPB) as a beneficial theory for understanding and predicting health behaviour. This study used the TPB as a theoretical framework to investigate safer sex practices of young people in SA. In addition to the attitudes, subjective norms, and perceived behavioural control constructs postulated in the TPB, other possible antecedents (e.g. alcohol consumption, and partner's expectations) and background factors (e.g. age, parent/carer communication, religiosity, sexual status, and sex education) were identified through a review of the literature as possible predictors of intentions to safer sex behaviour. Based on these factors, a Safer Sex Use Extended TPB Model (SSUEM) was hypothesised.

A safer sex questionnaire was developed following Francis et al.'s (2004) recommendations. However, prior to conducting the main study, a pilot study was conducted to assess the designed survey instrument. The safer sex questionnaire was piloted with 84 University students. As a result, the original safer sex questionnaire required modification.

Only the perceived behavioural control items, the demographic and the sexual health questions were used in the main study.

It was essential to re-visit the literature and identify another safer sex instrument based on the pilot results. Hence, the "Sexual Risk Scale" (SRS), a valid and reliable instrument developed by DeHart and Birkimer (1997), was identified as a suitable instrument to be used in the main study. The SRS instrument was used to test safer sex attitudes, subjective norms, partner's expectations, safer sex intentions and the proposed SSUEM model. The main questionnaire was designed in three sections. The first and third sections included demographic and sexual health questions, while section 2 presented the SRS instrument and the perceived behavioural control items derived from the pilot study.

The main study data were collected through an online survey of 911 male and female young people aged 18–24 years who had finished their high school studies and were living in South Australia. Statistical Package for the Social Sciences (IBM-SPSS) version 27 was used to run descriptive and inferential statistics for sections 1 and 3 of the questionnaire. A Structural Equation Modeling (SEM) using Mplus was the primary data analysis procedure used to test the relationships between the identified factors of the SSUEM.

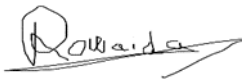
Results from the SEM revealed that safer sex attitudes, subjective norms, perceived behavioural control, parent/carer–teenage communication, and sexual status were important proximal factors related to safer sex intentions. Partner's expectations, alcohol consumption and religiosity were found to have more of a distal role. Parent/carer–teenage communication had the strongest effect on safer sex behaviour, followed by safer sex intentions and perceived behavioural control.

The findings suggest that safer sex attitudes, subjective norms, and perceived control are essential antecedents of safer sex intentions. These factors should be added to any

intervention aiming to promote safer sex use among South Australians, especially young adult women. The findings suggest that the additional possible antecedents, parent/carer–teenage communication and sexual status, should also be added to any potential future intervention. In other words, safer sex attitudes; what friends think about safer sex; self-efficacy and control to perceive safer sex use; frequent parent/carer–teenage safer sex communication; and sexual status should also form the basis of a possible safer sex intervention. Future interventions can also build on the study findings to strengthen the relationship between schools and parents.

DECLARATION

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.

Signed 

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1- INTRODUCTION

Worldwide, Sexually Transmissible Infections (STIs), such as Chlamydia and Gonorrhoea, are high among young people aged 15–24 years when compared to other age groups (World Health Organisation [WHO], 2014a). The rates of Human Immunodeficiency Virus (HIV) and unplanned pregnancies are also high in this age group (World Health Organisation [WHO], 2014a). Globally, young people aged 15–24 years are estimated to make up about one-third of those newly infected with HIV (WHO, 2014b).

In Australia, young people are not exempt from this alarming trend. Between 2014 and 2018, an increase in the STI notification rates for Chlamydia, Gonorrhoea and Syphilis was seen (Kirby Institute, 2020). This increase presented a 15% increase in Chlamydia notifications, especially among people aged between 15–29 years, an increase of 97% in the rates of Gonorrhoea notifications, especially among gay and bisexual men, and a 131% increase in the Syphilis notifications (Kirby Institute, 2020). These statistics suggest that Australian youth are at high risk of acquiring STIs if safer sex use is not practised appropriately and consistently.

If left undiagnosed and untreated, STIs can have devastating health effects. For example, Chlamydia, an asymptomatic STI in up to 50% of men and 90% of women (SA Health, 2012), can lead to infections of the reproductive system and long-term health consequences (SHine SA, 2019). However, STIs, such as Gonorrhoea and Chlamydia, can be prevented and managed by taking precautions and using safer sex methods such as condoms and dental dams (WHO, 2015a). In a similar vein, unplanned pregnancies can be prevented by following safer sex practices, such as the use of condoms.

The Centers for Disease Control and Prevention (CDC) (2014) has recommended safer sex practice through using contraceptive barriers such as condoms or dental dams. Contraceptive barriers prevent most STIs (Gallo, Kilbourne-Brook, & Coffey, 2012; WHO/UNFPA, 2012), unlike non-barrier forms of contraception such as birth control pills. Currently, there are both male and female condoms.

Male condoms are the oldest form of contraception. They have been around since the Ancient Egyptians developed and used them (Green, 1971). A male condom is a thin latex or polyurethane sheath that prevents pregnancy by restricting any bodily fluid transmission, acting as a barrier against sperm, mucous, and other bodily fluids such as blood entering the sexual partner's body. A male condom is considered the most effective method for STI prevention (especially HIV) among both males and females, apart from abstinence from all sexual contact (Centers for Disease Control and Prevention [CDC], 2013; Manhart & Koutsky, 2002; Reis, Ramiro, de Matos, & Diniz, 2013; U.S. Department of Health and Human Services, 2014; WHO, 2015a, 2015b). Condom use, therefore, plays a dual role, if appropriately used, in preventing pregnancies and the acquisition of STIs during intimate sexual activity.

Like a male condom, a female condom is made of latex or polyurethane. It plays a dual role of contraceptive protection while offering similar degrees of protection from STIs as do male latex condoms (WHO/UNFPA, 2012). Acting as another form of barrier to contraception, dental dams are made of an ultra-thin latex square held over the vaginal or anal area during oral sex, especially between women (SA Health, 2020b). They are especially useful for sex between women as they act as a barrier to reduce the risk of contracting STIs, including HIV, genital warts, and herpes (CDC, 2014; Government of Western Australia, 2016; Richters & Clayton, 2010). Contraceptive barriers can therefore provide protection during any form of sexual activity,

whether vaginal, oral, or anal. Identifying and understanding factors that influence safer sex practices is, therefore, crucial if we are to promote safer sex practices to reduce the risk of unplanned pregnancies and STI and HIV acquisition.

Safer sex practice is an important strategy for reducing the incidence of STIs and unplanned pregnancies in Australia. As described on the Family Planning Victoria (2016) website,

- It [safer sex] also means doing the things you need to do to keep you and your partner healthy. This includes:
- protecting yourself from sexually transmissible infections (STIs) and blood-borne viruses (BBVs) by using barriers such as condoms, having sexual health check-ups and being vaccinated against STIs and BBVs
- using contraception to avoid getting pregnant
- being aware of the effects of drugs and alcohol on your decision making and protecting yourself from having sex that you might regret or were pressured into because you were not thinking properly.

Therefore, safer sex includes strategies that individuals take as precautions to protect themselves against unintended pregnancies and STIs, and safer sex practices include using condoms or dental dams properly and consistently when engaging in sex.

Closer to home in South Australia (SA), the number of STI notifications is also of concern. In 2016, 15 South Australian young people were diagnosed every day with either Chlamydia or Gonorrhoea (South Australian Department for Health and Ageing [SA Health], 2016). The recent data had shown that between 2017 and 2018, the rates of STI notifications in SA increased by 3%, with the highest notifications among people aged 15 to 29 years (SA Health, 2019a). Of even more significant concern was the rapid increase of 85% in the rates of Gonorrhoea in South Australia (SA Health, 2020c). Such an increase in the rate of STIs would suggest that many young people are not practising safer sex properly or consistently during their sexual activity. Hence, South Australian young people are at risk of developing serious long-term

health consequences due to these infections. To minimise this risk and reduce the rates of STIs and unplanned pregnancies among young people, the patterns of young people's sexual behaviour need to be changed. To facilitate this change, it is essential that factors that could promote young people's safer sex practices are identified and considered in implementation strategies.

Identifying factors that promote safer sex practices could assist in designing an intervention to motivate young people to practise safer sex. A promising approach for this purpose was investigated by Brüll, Ruiter, Wiers, and Kok (2016). The Theory of Planned Behaviour (TPB) was used to identify the psychological factors influencing young people's safer sex behaviour. TPB was also used by an earlier study conducted by Armitage and Talibudeen (2010). An effective intervention was used to increase safe sex practices by changing safer sex attitudes, subjective norms and perceived behavioural control among young people aged 16–18 years.

TPB is considered a very useful theory for understanding and predicting health behaviour (Rhodes, Stein, Fishbein, Goldstein, & Rotheram-Borus, 2007). TPB posits that an intention to perform a specific behaviour, such as practising safer sex, is controlled or motivated by the individual's attitude, subjective beliefs, and perceived behavioural control towards the behaviour in question (Reinecke, Schmidt, & Ajzen, 1996). Safer sex behaviour, therefore, is more likely to occur if young people have a strong intention to do so. Intention is considered an immediate antecedent to the actual behaviour and, according to the theory, it is affected by three motivational factors (Ajzen, 1991; Reinecke et al., 1996). The motivational factors, namely attitudes, subjective norms, and perceived behavioural control, are the antecedents of intention due to their direct effect on the intention of performing the behaviour (Reinecke et al., 1996).

Based on TPB, changing an individual's behaviour depends on changing any or all of the three antecedents: attitude, subjective norms, and perceived behavioural control (Fishbein & Yzer, 2003). Other factors such as age, education, religious affiliation, and so forth can indirectly affect behavioural intentions by their direct effect on these three major antecedents (attitude, subjective norms and perceived behavioural control) and so are considered background factors (Ajzen and Fishbein, 2005).

There have been several studies (e.g. Reinecke et al., 1996; White, Terry, & Hogg, 1994) that have applied the TPB to predict safer sex intentions and to increase condom use to reduce the incidences of STIs and unplanned pregnancies. Other studies have also applied the TPB theory or parts of it to identify predictors of safer sex practices (Cha, Kim, & Patrick, 2008; Li et al., 2020; Mausbach, Semple, Strathdee, & Patterson, 2009) or to form interventions to prevent the acquisition of STIs (Cha, Kim, & Patrick, 2007; Fishbein & Yzer, 2003; Guo et al., 2014). The TPB model was useful in either identifying the predictors to safer sex or informing an intervention. The success of these studies suggests that investigating the antecedents of safer sex intention is a practical approach to take in identifying factors associated with safer sex practices. This study sought to examine safer sex practices of young people in SA using the TPB.

1.1 Statement of the Problem: STIs and Unplanned Pregnancy in SA

In South Australia, there are serious concerns about the high rates of STI notifications and unplanned pregnancy, especially among young people. Young South Australians are a key priority in the "Fourth National Sexually Transmissible Infections Strategy 2018-2022" and the "South Australian Sexually Transmissible Infections Implementation Plan 2019-2023" (SA Health, 2020d). In 2012, the first South Australian Sexuality Transmissible Infections Action Plan 2012–2015 was developed (SA Health 2012). This plan described the need to improve

young South Australian's access to STI prevention, testing, and treatment by supporting and increasing the number of sexual clinic and health community services (SA Health, 2012). There was also a focus on providing sexually active people with free condoms to prevent sexual transmission of HIV, along with the provision of clean needles and syringes for those who injected drugs, and developing access to HIV testing and counselling (SA Health, 2012). In 2020, a third STI plan was published, which built on the previous STI Implementation plans. Moreover, this plan also implemented a range of strategies to address and minimise STI-related stigma and discrimination and create an enabling environment (SA Health, 2020d). However, the rates of STIs are still increasing in South Australia, even in the presence of such STI action plans (SA Health, 2019a).

While the Australian national rate of teenage pregnancy declined from 17.6 (in 2006) to 9.2 (in 2017) live births per 1,000 women aged 15–19 (Australian Institute of Health and Welfare [AIHW], 2020). It is worth noting that the national teenage pregnancy rate only includes the incidences of live births and does not include national abortion statistics of females under 20 years (Marino & Sawyer, 2019). However, in South Australia, teenage pregnancy rates include both live births and induced termination in females under 20 years. The most recent data published by SA Health (2020a) showed a slight decline in teenage pregnancy rates (live birth and termination). Accordingly, the rates of teenage pregnancy declined from 15.8 (in 2017) to 15.4 per 1,000 females aged 15-19 years in 2018 (SA Health, 2020a).

However, STIs, especially Gonorrhoea, were increasing rapidly in SA, particularly among young people aged 25–29 and 20–24 years (SA Health, 2020c). In 2019, the incidence of Gonorrhoea was reported to have increased from 105 cases in 2010 to 586 in 2019 (SA Health, 2020c). Similarly, the notification rates of Chlamydia increased, particularly among the same

aged groups, from 690 cases in 2010 to 1,012 in 2019 (SA Health, 2020c). For this reason, SA Health issued a health warning in 2016, urging sexually active South Australians to practise safer sex and have regular STI tests (SA Health, 2016). SA Health reported that, overall, 1,500 South Australian young people aged between 20 and 24 years were being diagnosed with Gonorrhoea or Chlamydia each year (SA Health, 2016).

Moreover, a baby with a syphilis infection was born in SA in 2018 after SA Health had declared a congenital syphilis outbreak among young people aged 15–29 years in 2017 (Flood, 2018). SA Health reports also indicated that the syphilis infection had extended from the North, Eyre, and Western regions of SA to the metropolitan region (SA Health, 2019b). STIs notifications, therefore, are being recorded in all areas of the state, and all sexually active South Australian young people are at risk of acquisition of STIs unconditionally unless they abstain from engaging in any sexual activity.

The SA health warning was still current at the time of conducting this study. High rates of STIs are still a problem in SA. Therefore, more research is needed to determine how safer sex practices can be promoted and can assist in reducing the rates of STIs and unplanned pregnancy in South Australia.

Some research was carried out in 2019 to explore South Australian sexual health. The first youth sexual health report in South Australia was led by Ward and Elliott (2019) and carried out by the South Australian Health and Medical Research Institute (SAHMRI) with 2,380 South Australians aged 16–26 years. The study findings revealed that less than a third of sexually active young people in SA had used condoms with their regular (21%) and casual (36%) partners in the last year (Ward & Elliott, 2019). The results also showed that more than one third (39%) of the surveyed participants had used condoms the last time they had sex. Similarly, more than one third

(34%) of the respondents had used oral contraceptive pills. These findings suggest that many sexually active young people in SA are not practising safer sex during their sexual encounters.

Ward and Elliott (2019) noted that more than three-quarters of the participants had regular partners, which could explain why oral contraception was the most common form of contraception. Furthermore, the widespread use of oral contraception suggests that young people in SA may be more concerned with avoiding pregnancy than avoiding the acquisition of an STI.

1.2 The Purpose of the Research

In the presence of high rates of STIs in South Australia, especially among young people, a research study conducted by Ward and Elliott (2019) provided evidence that unsafe sex might be one of the main reasons for the presence of high rates of STIs and teenage pregnancy in South Australia. These findings are significant because they suggest that action must be taken, and there is a need to promote safer sex practices among young people aged 18–24 years. The rising rates are an indication that a response is required, and one solution could be by forming a safer sex intervention that promotes safer sex use. Consistent and proper use of safer sex methods, such as the use of condoms or dental dams, would decrease the rate of STIs among young people. Subsequently, practising safer sex would also reduce the rates of unplanned pregnancy.

It is crucial to identify the predictors of safer sex intentions and the beliefs that control safer sex behaviour in order to promote safer sex behaviour. Thus, the purpose of this study was to identify the predictors of safer sex intentions to inform an intervention that would increase safer sex behaviour. The TPB was used as the theoretical framework for this purpose, and a search of the literature was considered essential to identify other possible antecedents and background factors.

1.3 Theoretical Framework: The Theory of Planned Behaviour (TPB)

The Theory of Planned Behaviour (TPB) (Ajzen, 1991; Ajzen & Madden, 1986), shown in Figure 1-1, has been widely used to explain and predict health-related (Albarracin, Johnson, Fishbein, & Muellerleile, 2001) or social behaviours (Godin & Kok, 1996). As noted by Godin and Kok (1996), TPB is considered an efficient model for explaining intention across health-related behaviour categories. This suggested that TPB could be a suitable model for this particular research to understand young people's safer sex behaviour.

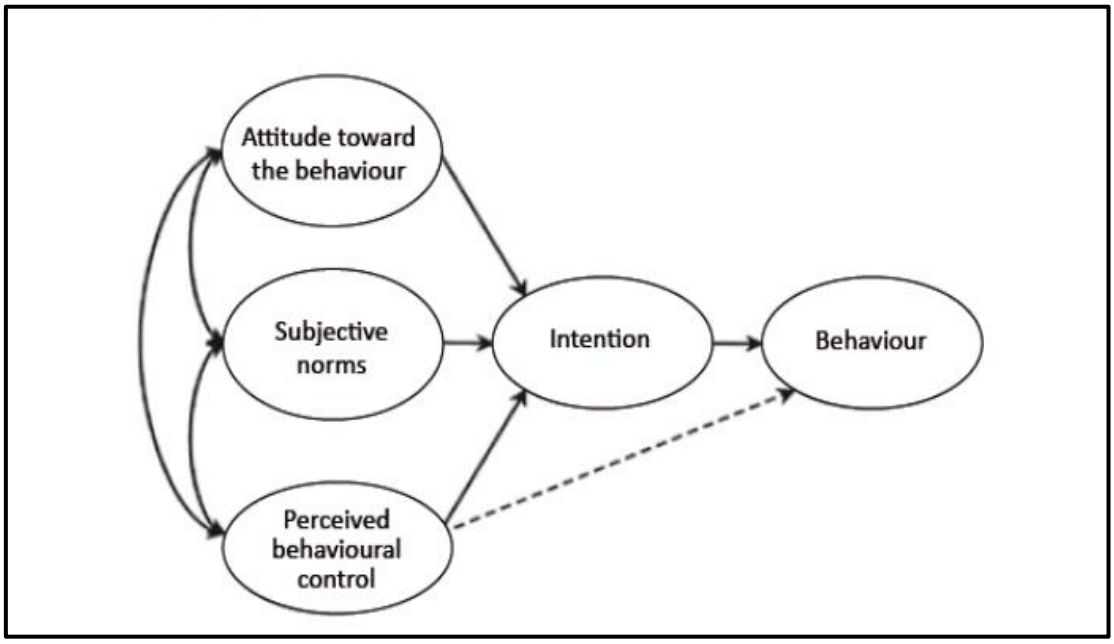

Figure 1-1: Model of the Theory of Planned Behaviour (TPB) (Ajzen, 1991, p. 182). Figure Reproduced with Permission.

The TPB has been successfully applied to explain individual behaviour in various fields such as weight gain prevention (McConnon et al., 2012), HIV prevention (Guo et al., 2014), technology and education (Cheon, Lee, Crooks, & Song, 2012; Lipnevich, MacCann, Krumm, Burrus, & Roberts, 2011). The TPB posits that individual behaviour is driven by an individual's

intention to engage in a particular behaviour, which is considered the principal cause of performing the actual behaviour (Fishbein & Ajzen, 1975). According to TPB, intention is an immediate antecedent for the individual to perform an actual human behaviour (Ajzen et al., 1996). Intention was defined by Ajzen (2002) as the "cognitive representation of a decision to perform a given behaviour" (p. 109). The stronger the individual's intention to engage in a behaviour, the more likely they are to perform it (Ajzen, 1991).

The TPB model postulates that the behavioural intention to perform a specific behaviour is influenced by one's favourableness or unfavourableness towards performing the behaviour (attitudes), perceptions about what others think and do with regards to performing the behaviour (subjective norms), and beliefs about one's ability to perform the behaviour in the presence of barriers to doing so (perceived behavioural control) (Ajzen & Fishbein, 2005). Consequently, the more one believes that the behaviour will have positive consequences, the more favourable the attitude toward the behaviour (Bleakley, Hennessy, Fishbein, & Jordan, 2009). For example, positive intentions towards safer sex during sexual activity with the sexual partner would be associated with feeling positive about always using safer sex practices. It would also involve having more subjective norms influencing the intention, perceiving and believing that it is of great significance that one should always practise safer sex even in the presence of barriers to doing so (Fishbein et al., 2001).

Perceived behavioural control, subjective norms and attitudes can directly influence one's intention to perform a particular behaviour (Albarracin et al., 2001). These three antecedents act as proximal factors on one's intention, as shown in Figure 1-1. Furthermore, TPB postulates that perceived behavioural control can directly affect the actual behaviour (Reinecke et al., 1996). This can be confirmed, for instance, if young people with strong perceived control are more

likely to practise safer sex compared to their counterparts with low or no control over their behaviour.

In the TPB model, Ajzen and Madden (1986) measured attitude as an aggregate of behavioural beliefs regarding the consequences of the behaviour and outcome evaluation as the judgments regarding this behaviour. Subjective norm was measured as an aggregate of two components of normative beliefs, including significant others' beliefs regarding the behaviour and the motivation to comply with the judgment beliefs. Perceived Behavioural Control (PBC) was measured as an aggregate of two components: control beliefs such as self-efficacy and perceived power to control the behaviour, both of which are associated with how confident one is to undertake the behaviour.

Ajzen (1991) acknowledged that non-motivational factors such as money, time and skills could also directly influence one's engagement in a particular behaviour. Therefore, the TPB model points out that the desire to perform a behaviour requires skill, time, and other resources, in addition to the control beliefs.

The model also reveals that there are external factors (or background factors) such as demographic variables (cultural background, education, religion, and so on) that might have an indirect effect on the behaviour (Ajzen & Fishbein, 2005). These background factors directly impact the behavioural antecedents, which in turn influence one's intention to engage in the actual behaviour. Researchers in this field have suggested these factors should be explored in more detail (Ajzen & Albarracin, 2007; Health, Lanoye & Maisto, 2012; Hennessy et al., 2010; Wang, 2013a; Wang, 2013b). This research, therefore, sought to investigate the association of demographic variables with intentions to practise safer sex.

Fishbein and Ajzen (2009) noted that while the TPB provides an accurate prediction of the given behaviour, it does not provide a complete explanation of the tested behaviour. Thus, they acknowledged that the TPB is subject to extension with additional predictors and that other antecedents could be added to the TPB model:

> …for the sake of parsimony, additional predictors should be proposed and added to the theory with caution, and only after careful deliberation and empirical exploration (p. 282).

Fishbein and Ajzen (2009) also highlighted that any additional antecedent should meet a five points criterion. They suggested that the proposed additional antecedents should be "behaviour-specific", "independent of the theory's existing predictors" and "potentially be applicable to a wide range of behaviours". The proposed variable could also be "a casual factor to determine intention and behaviour" (p.282). Fishbein and Ajzen (2009) also suggested that "the proposed variable should consistently improve prediction of intentions or behaviour if it is to be made part of the theory" (p. 282). Given that Protogerou, Flisher and Aarø (2013) found that age, religiosity and relationship status were associated with condom use, it is not unreasonable to expect that there may be other influential variables in addition to the TPB antecedents that predict safer sex intentions. This study aimed to find these additional variables and examine their association with safer sex intentions.

While various factors have been identified and associated with safer sex practices, Fishbein et al. (2001) noted that each population would have different predictors. The characteristics of the SA population might therefore be different from those in other countries. Use of the TPB in different contexts can result in identifying different predictors. It cannot simply be assumed, therefore, that the same predictors of safer sex intentions or the same intervention used in other locations can be applied to the South Australian population. Fishbein et

al. (2001) noted that "it is also possible that although attitudes are most important in one population or culture, perceived norms or self-efficacy may be most important in others" (p. 3). The use of the TPB in this study is unique, especially given that, at the time of conducting this research, no other studies had been carried out that applied the TPB to inform an intervention for safer sex practices in South Australia.

1.4 Significance

In South Australia, there was no research concerning young people aged 18–24 years and their sexual behaviours at the time of conducting this study. The researcher acknowledges that in October 2019, a first South Australian youth (aged 16–29 years) sexual health report was released (Ward & Elliott, 2019). The results of that report were released after this study had been initiated. More specifically, the report provided a snapshot of South Australian young people's sexual behaviours and STI knowledge. Despite this study conducted by Ward and Elliott (2019), there is still a lack of research on investigating and understanding the antecedents that promote safer sex intentions, especially among young people aged 20–24 years for whom STI rates are disturbingly high (SA Health, 2016).

A substantial body of research targeting sexual practices, contraception use, sex education, sexual decision-making, and gender norms and behaviours has been conducted across Australia (Agius, Pitts, Dyson, Mitchell, & Smith, 2006; Brown, 2015; Calabretto, 2009; de Visser et al., 2003; Fagan & McDonell, 2010; Flood, 2003; Johnson, 2006; Jones et al., 2016; McMillan & Worth, 2011; Milton & Berna, 2004; Mitchell, Patrick, Heywood, Blackman, & Pitts, 2014; Newton, Newton, Windisch, & Ewing, 2012; Richters et al., 2010; Smith et al., 2012; The Kirby Institute, 2015; Weaver, Smith, & Kippax, 2005). Such studies have generally been conducted in New South Wales, Victoria, and Queensland. However, none of those studies used

a health-behaviour theory to inform or design a safer sex intervention to prevent the acquisition of STIs and reduce pregnancy rates. The major research approaches utilised in other Australian studies have been qualitative and used to understand participants' contraception decision making, or quantitative and used to investigate beliefs about condom use or provide a snapshot of safer sex use among young people.

There had not been any research investigating young people's safer sex intentions for the last 20 years, specifically among South Australian young people. A very early study conducted by White et al. (1994) applied the TPB to assess the utility of the model for HIV-prevention behaviour. Therefore, a need for a safer sex study to understand South Australian young people's current safer sex intentions was warranted.

This study builds on White et al.'s (1994) findings and provides additional information about the proposed predictors of the safer sex intentions of young people in SA. The results of this study will inform interventions to specifically target South Australian young people aged between 18–24 years to practise safer sex. It will also inform academic, health, parental, educational, and cultural policies in sexuality and sexual health in South Australia about the significant factors to be targeted in future safer sex interventions. It may also inform the development of health promotion resources and strategies for schools that might impact South Australian young people's health awareness concerning safer sex practices.

By reviewing the literature about safer sex and the TPB model, possible antecedents and background factors could be identified. This study was designed to add these possible factors to the TPB model to form an extended TPB safer sex model, which would be tested by.Structural Equation Modelling (SEM) to determine if it was adequate for explaining young people's intentions to safer sex behaviour.

1.5 Thesis outline

This introductory chapter has outlined the general background of the study. It has also highlighted the statement of the problem, the conceptual framework of the research, and the significance of the study.

To assist in identifying the possible variables as either antecedents or background factors, Chapter Two reviews the existing literature on the Theory of Planned Behaviour (TPB) and the additional factors of safer sex behaviour, including extending the TPB safer sex model using additional antecedents and background factors. This review chapter concludes with identifying the gaps in the literature and a summary of the study research questions. The research questions are developed from the review of the literature. Thus, the research questions are addressed at the end of the literature chapter.

Chapter Three provides an overview of the methods used and the ethical considerations of this research project. This chapter describes the methodology used in the pilot study, namely the participant recruitment procedure, the pilot instrument used, and the data collection and analysis processes. In the final section of this chapter, the pilot results are reported and discussed. The questionnaire items to be used in the main study and their revisions are listed.

Chapter Four details the methods used in the main study. It discusses the participants' recruitment, the main study instrument, data collection, and data analysis.

The findings of the main study, such as the descriptive data and the Structural Equation Modeling (SEM) findings for all the tested models, are presented in Chapter Five.

Chapter Six discusses the findings based on the previous literature review. Initially, it discusses the results of the main study and provides some implications for safer sex intervnetion .

Finally, Chapter Seven presents a summary of the research outcomes and offers recommendations for future research in this area.

2- LITERATURE REVIEW

'Being sexual' is an essential part of many people's lives, especially young people aged between 10 and 24 (United Nations [UN], 1985; WHO, UNFPA, & UNICEF, 1999). During this developmental period, there is an increasing interest in having sex due to biological, sociological, and psychological changes during puberty (DiCenso & Van Dover, 2000). Thus, the teenage years can be an important time when young people begin to engage in intimate sexual activity. This age group represents 18.1% of the South Australian population (ABS, 2017).

For the purpose of this study, being sexually active was defined as a person who had engaged in at least one sexual activity (such as vaginal, oral, or anal sex) during their lifetime. Being sexually inactive was defined as a person who had never experienced, at the time of conducting the research, any sexual activity (such as vaginal, oral, or anal sex) during their lifetime. Sexually inactive people have a negligible risk of acquiring STIs and/or getting pregnant.

Sexual behaviour emerges from a complex association between "biology and genetics", "individual perceptions", "personality characteristics", and "sociocultural norms and values" (Sieving, Bearinger, Resnick, Pettingell, & Skay, 2007, p. 407). However, this association is at risk of being affected negatively by risky sexual behaviours (Tura et al., 2012). Risky sexual behaviours are defined as "being engaged in early age sex, having multiple sexual partners, unprotected vaginal, oral or anal intercourse and sex with commercial sex workers without the use of safer sex practices" (Mulu, Yimer, & Abera, 2014, p. 11).

Unsafe sexual activities are considered the primary means of transferring STIs. STIs can transmit from one person to another via sexual exposure with an infected partner (Australian

Bureau of Statistics [ABS], 2012). This transmission can result from high viral or bacterial loads and contact with infected body fluids such as blood, vaginal fluids, or semen. It can occur through damaged mucous membranes from lesions such as cold sores (oral herpes) or skin contact. In addition, other factors increase the likely risk of STI transmission, such as "recent dental surgery, pharyngitis, trauma, oral ulceration, or bleeding gums" (Hawkins, 2001, p. 308). STIs can also be transmitted through exchanging infected needles while sharing drugs (McCombs, McCray, Wendell, Sweeney, & Onorato, 1992; Richters & Clayton, 2010). STIs can cause infections of the reproductive system and long-term health consequences if left undiagnosed and untreated (SHine SA, 2019; WHO, 2015a).

2.1 Factors Associated with Safer Sex

Many studies have been conducted to identify the factors that influence safer sex use among young people. Young Mi et al. (2008) revealed that increasing condom use necessitates an understanding of the influencing aspects and factors that promote or prevent its use.

Studies have shown that young people widely understand condom use to prevent the acquisition of STIs and unplanned pregnancy (Brown, 2015; de Visser, 2003; Reece et al., 2010; Wong, 2012). In her research, Wong (2012) found that condom use was the most commonly known contraceptive method among young females in Malaysia aged 14–26 years. Females in that study consistently used condoms to prevent unplanned pregnancies; however, the acquisition of STIs was not at the forefront of their reasoning. Similarly, several studies (Abel & Fitzgerald, 2006; Calzavara et al., 1998; de Visser, 2005; Senior, Helmer, Chenhall, & Burbank, 2014; Smith et al., 2012; Wong, 2012) revealed that young people used condoms because their highest priority was to defer unplanned pregnancies rather than to avoid contracting STIs. A study conducted by Munakampe, Zulu, and Michelo (2018) found that failure to prevent pregnancy due to unsafe sex

practices was associated with abortion. Young adolescents opted for abortion decisions to secure their future regarding their education, financial and socio-economic status. Despite the evidence, Bromham and Oloto (1997) found an indirect correlation was present between contraceptive use, such as condoms, and abortion. The findings implies that the use of contraception will reduce the rates of unplanned pregnancy and abortion.

In terms of understanding this behaviour, Abel and Fitzgerald (2006) pointed out that pregnancy is commonly observable, and Beers and Hollo (2009) and Flood (2003) argued that any unplanned pregnancy has high emotional, social, and economic impacts on young people's early life stages. Unplanned pregnancy at an early age can negatively affect their life plans (Groes-Green, 2009). Therefore, preventing pregnancy is seen as a predictor of consistent condom use, unlike acquiring an STI that others cannot see but that necessitates safer sex use.

Condom use was found by Reece et al. (2010) to be more likely with a casual sex partner than with a partner in a steady relationship. It appears that young people are aware of the effective role of safer sex practices, and they are knowledgeable about safer sex use. However, young people could misjudge the consequences of acquiring an STI (Parsons, 2013) and be unaware of the symptoms (Royer & Zahner, 2009).

Even though young people may understand the importance of condom use, there are still factors that prevent them from engaging in safer sex practices consistently, which places them at risk of acquiring STIs. Research evidence has revealed a variety of motives for why young people engage in unsafe sexual practices during their sexual encounters. For example, Newton et al. (2012) found that Australian male respondents believed that condom use reduced sexual pleasure and delayed the time to ejaculation. Embarrassment when purchasing condoms, especially among female respondents, was also a reason for unsafe sexual activities. Meanwhile,

a qualitative study by Smith et al. (2012) among young Australian males showed that preventing pregnancy by their partner's use of birth control pills and trusting their partner's fidelity during a committed relationship were revealed as factors that reduced condom use. In addition, Groes-Green (2009) noted different reasons for male youth practising unsafe sex in Sub-Saharan Africa, such as wanting "pure sex", "flesh to flesh", "living in the moment" and proving one's masculinity (p. 236). According to the TPB, the reasons listed in these studies would be related to young people's attitudes towards safer sex use. Young people have different attitudes toward practising safer sex, which can impact their beliefs about the importance of safer sex. It is, therefore, essential to identify possible antecedents that might have an effect on young people's intention to safer sex use. Thus, this study aimed to identify additional antecedents in a TPB model for safer sex behaviour.

2.2 The TPB Safer Sex Practice Model

Theory of Planned Behaviour (TPB) has been widely used to understand safer sex behaviour among young people (Albarracin, Johnson, Fishbein, & Muellerleile, 2001). Research has also revealed that TPB is an effective theory in predicting safer sex intentions (Albarracin, et al., 2001; Reinecke, Schmidt, & Ajzen, 1996). Moreover, TPB was found useful for the development of effective health behaviour interventions. Fishbein and Yzer (2003) highlighted the importance of using a theory to guide intervention development and outlined the process of designing an intervention based on TPB. Thus, TPB can be applied to change identified targeted beliefs for a particular behaviour, such as safer sex use.

Several researchers have applied TPB to identify the predictors of safer sex, such as the use of condoms or dental dams. For example, de Visser (2007) reported that the predictors of condom use among young people aged 18–29 years were attitudes towards condoms, intentions

to use condoms, and discussions about condom use with sexual partners. These findings corroborate the TPB within which behavioural intention is the essential factor and, therefore, a significant predictor of a certain behaviour (Ajzen, Reinec, & Schmidt, 1996).

In their longitudinal study of 650 German youths, Reinecke, Schmidt and Ajzen (1996) applied the TPB to examine the predictors of condom use with a new partner among young people and found that attitudes and subjective norms were the strongest predictors, followed by perceived behavioural control. Interestingly, Reinecke, Schmidt and Ajzen (1996) found a direct association between Perceived Behavioural Control (PBC) and condom use among young people who had safer sex experiences in the past. The skill or lack of skill associated with using a condom was also an influencing factor for practising safer sex (Reinecke et al., 1996). In their study, they found that safer sex behaviour was primarily predicted by intention and perceived behavioural control. In contrast, attitudes, subjective norms, and perceived behavioural control predicted intentions to practise safer sex.

An earlier longitudinal study conducted by White et al. (1994) among 211 sexually experienced heterosexual undergraduates found that only subjective norms and attitudes predicted intentions to practise safer sex. Furthermore, Protogerou, Flisher, Wild, and Aarø (2013) noted that the predictors of safer sex among South African university students "explained 43% of the variance of intention to use condoms among the sexually active sample, and 31% among the sexually inactive" (p. 23). Attitude was the strongest predictor of safer sex, followed by perceived behavioural control and subjective norms. However, a similar study by Guo et al. (2014) found different predictors of condom use among Chinese university students. Their results showed that half of the variance in safer sex intentions was predicted by the TPB, but PBC was the strongest predictor of safer sex, followed by subjective norms and attitudes. Similarly, Brüll

et al. (2016) found that PBC and subjective norms predicted young people's (aged 18–24 years) intentions to perform safer sex behaviour with a new sexual partner.

Studies (Guo et al., 2014; White et al., 1994) that used TPB have shown that TPB is a valuable theory for predicting safer sex practices. However, the general amount of variance accounted for by a safer sex model was less than 50% when the model included only the three antecedents of attitudes, subjective norms and perceived behavioural control. These findings suggested that there may be additional influential factors missing from the model in predicting safer sex intentions.

2.3 Identifying Additional Antecedents and Background factors for TPB Safer Sex Model

Ajzen (1991) acknowledged that the TPB is "open to the inclusion of additional predictors if it can be shown that they capture a significant proportion of the variance in intention or behaviour" (p. 199). For a construct to be considered an "additional factor", Fishbein and Ajzen (2009) stated that it must meet five criteria. The proposed new variable should be "behaviour-specific", "independent of the theory's existing predictors", "potentially applicable to a wide range of behaviours", as well as act as "a casual factor to determine intention and behaviour" and "consistently improve prediction of intentions or behaviour if it is to be made part of the theory" (p. 282). They highlighted, however, that not all proposed variables would meet all five criteria. Subsequently, they suggested that researchers should form the proper measures to develop adequate items to test the proposed variables.

Several studies have sought to extend the TPB model to predict safer sex intentions by including additional variables, whether as antecedents or background variables (Protogerou, Flisher, Wild, and Aarø, 2013). Protogerou et al. (2013) examined several additional background

variables in the TPB, including age, religiosity, and relationship status, and found an association between these variables and condom use. Mausbach et al. (2009) also tested the effect of three additional factors as antecedents of safer sex intentions in a TPB model of safer sex practices: methamphetamine use, intentions to have sex and a desire to stop unwanted sex. They found that this extended model explained 48% of the total variance in safer sex intentions. The significant predictors of safer sex intentions were attitudes toward safer sex, normative beliefs, and control beliefs. Low methamphetamine use, less intent to have sex, and a greater desire to stop unsafe sex were also predictors.

Other studies examining safer sex intentions using the TPB have extended the model to include other influencing variables. For example, DiCenso and Van Dover (2000) suggested that post-secondary students were more at risk due to the biological, sociological and psychological changes associated with adolescence, while Tura et al. (2012) pointed to influences such as "socio-demographic and economic characteristics", "lack of parental control", "substance use" and "living out-off campus" (p. 179). Risky sexual behaviours generally occur among youth, and Ellis (2016) revealed a significant relationship between students' attitudes towards contraceptive use and their knowledge of contraception.

Other studies (Ellis, 2016; King, Vidourek, & Singh, 2014; Tura et al., 2012; Wong, 2012) have focused on influential factors associated with why young people are at high risk of unplanned pregnancy and STIs. For example, Tura et al. (2012) found that having multiple sexual partners led young people to engage in unsafe sex. Studies by Ellis (2016), King et al. (2014), and Tura et al. (2012) revealed that it is unlikely for safer sex to be practised under the influence of substance use such as alcohol and illicit drugs. Ellis (2016), King, Vidourek, and Singh (2014)

and Wong (2012) identified more reasons for unsafe sex practices, such as being under peer pressure to engage in unsafe sex, low level of religiosity and lack of parental control.

De Visser and Smith (2001) and Marston and King (2006) noted that the partner's expectations primarily influenced safer sex behaviour during the sexual encounter. Safer sex use was less likely to be practised if the sexual partner, mainly a male, was determined to engage in unsafe sexual behaviour by not using condoms or dental dams. However, Wong (2012) revealed that lack of sexual and reproductive knowledge might prevent young people from practising safer sex during their sexual encounters.

In their studies, Tura et al. (2012) and Wong (2012) found that sexual risk-taking behaviour among university students was widespread. The surveyed young people were inconsistently practising safer sex during their sexual activities. However, Marston and King's research (2006) showed that the social stigma of carrying condoms, felt mainly by women, could be one of the factors for young people to practise unsafe sex. The carrying of condoms was associated with a lack of trust in the relationship and the researchers suggested that condom use initiated by women could lead to physical violence if women insisted on using condoms.

It is clear from these studies that additional antecedents can be found and added to the TPB safer sex model if they can meet most of the five criteria suggested by Fishbein and Ajzen (2009), as noted above. Thus, reviewing the literature was essential to identify additional antecedents to test and include in the extended TPB model of South Australian young people's safer sex intentions. Through reviewing previous studies, it has been noted that other factors could be considered in the extended TPB model, with some factors identified as possible background variables and others seen as antecedents to safer sex intentions. In the following section, after reviewing previous studies, the possible variables are examined in more detail.

2.4 Distal (background) Factors of the TPB Safer Sex Model

Ajzen and Fishbein (2005) noted distal (background) factors such as demographic variables (e.g., age, education, cultural background and so on) that might have an indirect effect on the behaviour in question. Thus, the TPB antecedents might mediate the effect of these background factors on safer sex intentions, with the background factors having a direct effect on the behavioural antecedents which influence one's intention to engage in the actual behaviour. This section reviews relevant literature to identify possible distal factors that could be tested to extend the TPB model of safer sex. Distal factors identified in the literature that warranted further consideration for an extended TPB safer sex model were age, parent/carer–teenage communication, religiosity, sexual status, and sexual health education.

2.4.1 Age

A meta-analysis study conducted by Sheeran and Orbell (1998) aimed to test the effect of several moderator variables such as age on the relationship between intentions and behaviours. Their study found a significant association between respondents' age group and the strength of the intention–condom use relationship. Age moderated the relationship between intention and condom use. In other words, younger groups were less likely to practise safer sex use than older groups. However, Sheeran and Orbell (1998) indicated that the relationship was still unclear and suggested that further research was required to examine the age factor and its mediating effect on the intention–condom use relationship. This implied it would be useful to add age as a factor to the extended TPB model in this study to identify its role in the intention–safer sex use association.

In their research, Cha, Kim and Patrick (2008) sought to extend the TPB by testing the effect of age on safer sex intentions among Korean young women. They found age indirectly

predicted safer sex intentions by influencing peer norms of condom use and condom efficacy for both young men and women. Older respondents were found to have higher condom use efficacy and perceived peer norms about condom use than were younger ones. However, these results differed between men and women. For Korean young men, all the TPB constructs significantly predicted condom use intentions. However, for women, only condom attitudes and perceived control significantly predicted safer sex intentions. Their study implied that age and sex differences between men's and women's attitudes predicted safer sex use. The findings suggested that extending the TPB model with the addition of the age factor as a background would better explain the safer sex intentions of young people. The effect of sex differences on safer sex, however, was not investigated in this actual researchbecause the inclusion criteria of the study included young people regardless of their sexual identity.

Furthermore, a study conducted by Adefuye, Abiona, Balogun, and Lukobo-Durrell (2009) to examine sexual risk behaviours and consistent condom use among predominantly African American commuter urban university students revealed that students aged 30 years and older were almost four times more likely to report unsafe sex in the last sexual encounter compared to those younger than 20 years. This suggests that age is a predictor of safer sex use.

A more recent study by Chandran et al. (2012) also found that younger participants were more likely to use condoms than older ones. The study also showed that knowing how to use condoms properly was more likely among younger people than those who were older, which was one of the reasons why older age groups were found to use condoms less often. Moreover, other reasons were attributed to lower use of condoms among older age groups, including condom refusal, in which shame was found to be associated with condom use because of HIV stigma.

Overall, the reviewed studies suggested that age can affect safer sex use and predict young people's safer sex behaviour; however, there were inconsistent findings on its effect. The effect of age of young people on safer sex use was therefore worth testing in the extended TPB model to identify whether younger age groups were more likely or not to practise safer sex. Also, examining the age factor in the extended TPB model would be important in understanding its effect on the intention–safer sex use relationship. Age factor was, therefore, tested in the extended TPB model as a possible background factor for safer sex use.

2.4.2 **Parent/Carer Communication**

To improve and promote condom use, DiClemente et al. (2001) suggested providing young people with support through parent–teenage communication. Their study tested the effect of parent/carer–teenage communication on the frequency of condom use and the negotiation of condom use with the sexual partner. The parent–teenage communication entailed parents discussing sex-related topics, communication, and practices with their children. The authors found a positive association between parent–teenage communication and young people's safer sex practices and their negotiations with the sexual partner. Discussing safer sex with the sexual partner is one of the essential first steps to ensuring sexual self-protection against STI transmission and/or preventing pregnancy (Dutra, Miller, & Forehand, 1999; Whitaker, Miller, May, & Levin, 1999).

Ritchwood, Penn, Peasant, Albritton, and Corbie-Smith (2015) found that greater condom use efficacy was positively associated with parent–teenage communication about sex. Similarly, Cha, Kin and Patrick (2008) tested the effect of parent–teenage communication by expanding the TPB model. The authors noted that the TPB model expanded by adding age, parent–adolescent communication, and perceived risk of sexual behaviour, was found to better explain safer sex

intention among Korean young people, especially for young men. Perceived behavioural control was also the strongest predictor for safer sex intention among young men and young women.

Evidence from other studies (Dutra et al., 1999; Hadley et al., 2009; Hutchinson & Cooney, 1998; Jaccard & Dittus, 1993; Rodgers, 1999) suggests that parent–teenage communication, especially the maternal influence, can play a fundamental role in reducing young people's risky sexual behaviours and their outcomes. Whitaker et al. (1999) found a strong positive correlation between parent–teenage communication about sexuality and sexual matters and an increased likelihood of teenage–partner communication about safer sex.

Parent–teenage communication is a key determinant of young people's sexual health. It increases safer sex behaviour because parental monitoring moderates the association between peer norms and lifetime numbers of sexual partners (Jones, Salazar, & Crosby, 2015). Hence, it appears that greater parent–teenage communication would decrease the influence of peer pressure to engage in risky sexual behaviours and lead to a protective effect of practising safer sex use.

Several studies (DiIorio, Kelley, & Hockenberry-Eaton, 1999; Hutchinson, 2002; Kirby, 2006; Kirby, 2007; Kirby et al., 2006; Measor, 2004) noted that mothers were the primary sexual communicators with their teenage children, especially with daughters. Mothers who were more confident in their ability to communicate with their children were more likely to initiate sexual communication with their daughters and sons. DiIorio, Kelly, and Hockenberry-Eaton (1999) observed that mother–daughter communication included discussing topics related to birth control, "menstrual cycle, what mother thinks about teens having sex, how life would change with parenthood, sexual intercourse, and not having sex at all" (pp. 185-186), while mother–son communication included talking about "what they think about teens having sex, STD/AIDS, dating and sex behaviours, not having sex at all, and using condoms" (p. 186).

Furthermore, Hutchinson and Cooney (1998) found that young women were receiving more information about sexual risks from their mothers than their fathers, which was consistent with Walker (2001), who identified that mothers were seen as the primary health educators at home.

The religious values of mothers were also found to be an important component of the parent–teenage communication. DiIorio et al. (2000) found that mothers with high conservative religious values held strong beliefs against sexuality and were less likely to initiate conversations about sex-based topics with their children. However, mothers who held fewer religious beliefs were more likely to discuss sex-based issues with their adolescent children.

In her study of 234 young women aged 19–21 years, Hutchinson (2002) found that early parent–adolescent communication could not only delay sexual initiation, but it could also influence consistent condom use. Generally, mother–daughter communication included giving information on condom use prior to sexual debut, and this was found to be a significant predictor of consistent condom use.

Several researchers (DiIorio et al., 1999; Shoop & Davidson, 1994; Stattin & Kerr, 2000) reported that girls tended to communicate with their parents more than boys did. Menstruation and contraception were among the first sex-related topics discussed by teenagers with their mothers (Hutchinson, 2002). This suggests that informal sex education is undertaken by parents with their teenage children, especially when menstruation is considered a sign of their daughter's potential fertility and sexual development, while no obvious fertility signs exist for boys (Sharpe, Mauthner, & France-Dawson, 1996).

Researchers DiIorio et al. (1999) and Rodgers (1999) found that the primary reason for parents initiating safer sex discussions or sex-related topics, especially with their daughters, was

to protect them from getting pregnant because of its impact on their future, or because of the chance of catching an STI. Moreover, parents' readiness or lack of to discuss sexual health issues was found by Walker (2001) to be a factor for not initiating any parent–teenage sexual health communication. She suggested it could benefit parents/carers to work with professionals and alongside the school sex education teacher (Walker, 2004).

Parent–teenage sexual communication may positively impact a teenager's sexual behaviour more than teenage–peer communication does, through moderating peer pressure for young people to engage in risky sexual behaviour. For instance, a study was undertaken by Whitaker et al. (1999), and Whitaker and Miller (2000) found that teenagers who had good discussions with their parents regarding sexual issues felt more comfortable than did some of their peers in discussing safer sex with their partner.

A study by DiClemente et al. (2001) of 522 sexually active African American females aged 14 to 18 years found a positive correlation between the frequency of parent/carer–teenage communication and the use of contraceptives during young people's sexual activity. The study also showed that the frequency of parent/carer–teenage communication was positively associated with young people's preparatory behaviours such as purchasing and storing condoms and negotiating condom use with their partners. Similarly, Hutchinson (2002) found that positive parent–teenage communication significantly influenced young people's safer sex preparatory behaviour, such as through purchasing condoms and negotiating skills about their use.

Scheibe, Orleyn, Ekström, Bekker, and McIntyre (2016) noted that parent sexual health communication could give adolescents emotional strength. Young people who had a good relationship with their parents, including frequent communication, had strong self-efficacy and the ability to negotiate condom use, were more likely to practise safer sex, to use other

contraceptives, and to refuse unwanted sex (DiClemente et al., 2001; Hutchinson, 2002). Furthermore, young people who had discussed sex with their parents were more likely to practise safer sex during their early relationships, particularly at the beginning of a relationship with a new sexual partner (Brüll et al., 2016).

Parent–teenage communication about sexual matters is most effective when parents are open, comfortable, and skilled in such discussions (Hutchinson, 2002). According to Hutchinson (2002), the initiation of parent–teenage sexual communication was also affected by the parents' country of birth, religious beliefs, and the sexual identity of the parents and the child. In other words, sexual communication was more likely to occur if parents held less religious affiliation and were coming from diverse cultural backgrounds with less conservative beliefs. It was more likely to be initiated between mother and daughter. In addition, Huebner and Howell (2003) revealed that parent–teenage sexual communication processes were also affected by a range of social factors, such as parental cultural values, access to resources, educational background, socio-economic status, and neighbourhood safety. The findings indicated that parent–teenage sexual communication was more likely to occur if parents held fewer conservative values and came from a high socio-economic status.

Findings from a study by DiIorio, Dudley, Lehr, and Soet (2000) with 1,349 participants aged 18–25 years who were single and sexually active, found that the perception of the quality of the parent–teenage communication was one of the factors associated with young people's safer sex communication with their sexual partner. Good quality parent–teenage communication fostered a higher level of self-efficacy to discuss and report safer sex use. These findings supported earlier studies by Hutchinson and Cooney (1998) and DiIorio et al. (1999), who found

that parental sex education was associated with later onset of first sexual initiation and more effective contraception use.

By contrast, DiIorio et al. (2002) found that parent–teenage communication about sex was likely to increase risky sexual behaviour and more frequent initiation of sexual encounters. They found that increased self-efficacy to say no to unwanted sex was associated with less mother–teenage communication. DiIorio et al. (2002) explained: "We believe that parents are more likely to discuss a range of sexual topics with their adolescents when they believe that their adolescents are ready to receive the information" (p. 119). Thus, it could be that parents might start initiating these discussions after their children had become sexually active.

While Hadley et al. (2009) found that parent–teenage communication could increase condom use, their study did not identify any precise messages or strategies about how parents should communicate with their teenage children to increase safer sex behaviour, nor ways to initiate the discussion in an age-appropriate format.

In summary, research findings generally suggest that parent–teenage sexual communication has a strong impact on young people's safer sex practices. It increases their self-efficacy to negotiate condom use with their partner and their willingness to purchase and carry a condom, while it decreases risky sexual behaviour. However, to date, no studies have examined the association of parent–teenage communication on safer sex intentions in a TPB safer sex model in South Australia. Parent–teenage communication was therefore considered worthy of becoming a possible background variable in the proposed safer sex use extended TPB model, as shown in Figure 2-1 at the end of this chapter. However, it is worth noting that the reviewed literature did not specify clearly whether the parent–teenage communication was initiated via the biological parents of the young people or not. Thus, to acknowledge that young people's primary

carer might not be a biological parent, a decision was made to use the term "parent/carer–teenage communication" instead of "parent–teenage communication" across this thesis.

2.4.3 **Religiosity**

Other TPB studies have suggested that religious beliefs have a negative influence on contraception use (Nsubuga, Sekandi, Sempeera, & Makumbi, 2016) and on attitudes towards contraception (Ireland, Narjic, Belton, Saggers, & McGrath, 2015).

Most religions traditionally place morally conservative restrictions on sexual behaviour (Fehring, 2008; Parsons, 2013). In particular, most religions tend to control sexual behaviour by viewing sexual intercourse as appropriate only in the context of marriage and traditionally between a man and a woman (Fehring, 2008; Parsons, 2013). Most religions contain conservative groups who are highly critical of abortion and contraception (Fehring, 2008; Koenig, 2004) and exert social control over their adherents' sexual attitudes and behaviours (de Visser, Smith, Richters, & Rissel, 2007).

The 6th National Survey of Australian Secondary Students and Sexual Health (Fisher et al., 2019) conducted among Australian high school students aged between 16 and 19 years (Years 10 to 12), found that 27.7% of the respondents stated that their religious beliefs were a reason for not being sexually active and for postponing their first sexual experience. Female students (28.9%) were more influenced by their religious beliefs compared to male students (26.2%) when considering avoiding sexual intercourse (Fisher et al., 2019). It is, however, interesting to note that these results were greater than those from the 5th National Survey of Australian Secondary Students and Sexual Health that was conducted in 2013 by Mitchel, Patrick, Heywood, Blackman and Pitts (2014). Specifically, their results revealed that only 19%

of the Australian high school students identified a relationship between religious beliefs and sexual inactivity.

Mitchel et al. (2014) also revealed that less than one quarter (21.5 %) of female students were found to be more concerned about their religious beliefs regarding avoiding sexual intercourse compared to male students (14.2%). Surveys such as these suggest that young people are becoming sexually active before finishing their high school studies and add to the importance of their preparedness to practise safer sex during their high school years.

According to de Visser, Smith, Richters and Rissel (2007), the relationship between religion and sexual behaviours and attitudes "depends on the religion, the degree of religiosity, and the behaviour or attitude of interest" (p. 42). In their study conducted among 19,307 Australians aged 16–59 years, de Visser, Smith, Richters and Rissel (2007) found that Christians who had a high level of religiosity (such as attending church at least once a month) were more conservative about their sexual behaviour and attitudes. However, religious Australian Buddhists and Muslims were found to be less conservative than Christians. In addition, abstinence from premarital vaginal intercourse was the strongest evidence of the influence of religion/religiosity on the adherents' sexual behaviour, especially when they were young. Furthermore, a study conducted by Ezer, Leipert, Evans, and Regan (2016) among young females aged 16–19 years living in the rural areas of Ontario, Canada, found that sexual decision-making seemed to be influenced by their Christian beliefs, which resulted in prolonging their first initiation of sexual activity.

It is difficult to determine how religious beliefs could influence safer sex practices, given that abstinence and chastity prevail. However, Groes-Green (2009) found that religion was one of the reasons young men in Mozambique chose not to use condoms. The researcher noted that

many young men appeared to justify their avoidance of condoms by citing beliefs promoted by churches and mosques. Religious leaders told these young men that STIs were "God's punishment of 'bad people'" (p. 235) and that everything that happened was "predetermined by God, ancestors or bad spells" (p. 235), so it was worthless to make a personal effort to be protected from STIs. This suggests that there is a religious connection between sexual safety and risky behaviour.

Similarly, James et al. (2011) found that religion was associated with engaging in unprotected vaginal intercourse among sexually active university students in North America due to religious beliefs that mandated against safer sex use. Ireland et al. (2015) reported that older Australian Aboriginal Catholic women, and some young Aboriginal women, had a negative attitude towards contraception because they considered that "God made our bodies that way to have babies" (p. 6). They claimed that their cultural and religious beliefs guided their sexual practices. Religious beliefs, therefore, may be generally associated with avoiding contraception and with safer sex practices.

Furthermore, Smerecnik, Schaalma, Gerjo, Meijer, and Poelman (2010), undertaking an exploratory study in the Netherlands among 44 Muslims and 33 non-Muslims aged 12–24 years, examined Muslim views about sexuality. The findings showed that "double morality" existed in relation to pre-marital sex, where sex before marriage was "haram" (a sin) in Islam (p. 3). The participants noted that sex outside of marriage, and even masturbation, was prohibited. They also considered masturbation to be haram, as "sex with yourself", derived from lust and which led to adultery and homosexuality. Smerecnik et al. (2010) found a link between gender and sexual activity within Islam, wherein most Muslim men had sex before marriage by deciding it was not haram. In contrast, Muslim women protected their virginity for the sake of their future husbands,

reinforcing their abstinence. Sexual double standards could be true across many cultures in relation to both religious and non-religious beliefs. By contrast, Smerecnik et al. (2020) stated non-Muslims considered pre-marital sex a normal part of a relationship, masturbation as "perfectly natural" (p. 5), and homosexuality as genetically determined.

In summary, the findings discussed above suggested that religion can have varying effects on people's sexual behaviour. It is evident that religiosity can have a direct effect on either the individual's behavioural intention or on their behaviour to practise safer sex. In this study, participants were therefore asked about their religion and if it was important to them. Religiosity was added to the TPB Safer Sex Model as shown in Figure 2-1 as a possible background factor, before testing where it better fitted by using Structural Equation Modelling (SEM).

2.4.4 **Sexual Status**

Wight et al. (2008) reported that young people's sexual histories were a predictor of their most recent sexual experiences and current relationships. Young people's past sexual experiences had a greater significance on safer sex use than did the effect of background social characteristics such as religiosity, communication with parents and substance use. They found that high self-efficacy and minimal pressure from their partner were the main reasons for young people delaying their first sexual experience. Furthermore, they revealed that most sexually active young people who used condoms during their first sexual experience were more likely to use condoms in later sexual encounters. This suggests that sexual status can be an influencing factor in young people's safer sex intentions. The past sexual experiences where condoms have been used could therefore influence safer sex intentions, as condom use could become a habit.

In another study of the TPB and safer sex practices, subjective norms and perceived behavioural control were found by Protogerou et al. (2013) to be predictors for safer sex

intentions among sexually inactive people, while subjective norms were the strongest predictors of practising safer sex among sexually active young people. Other studies (Nguyen, Saucier, & Pica, 1996; Pascal Sheeran, Abraham, & Orbell, 1999) have shown that being sexually inactive was positively associated with greater intentions to practise safer sex.

Findings such as these suggest that sexual activity status influences the relationship between psychological factors and safer sex intentions. It was thus important to consider sexual status as an additional factor in the TPB Safer Sex model.

2.4.5 **Religiosity and Sexual Status**

Izugbara (2007) noted that sexually inactive young people considered themselves to be "well raised, religious, obedient, good, and responsible" (p. 79) if they practised abstinence, while having sex before marriage was "wrong, sinful, dangerous, and immoral" (p. 80). Hence, abstinence was seen as a healthier choice for STI and pregnancy prevention among sexually inactive young people.

An earlier study by Gerholm (2003) showed that sexuality was integrated with religious beliefs and values, especially for women. Female virginity in this context was viewed as a sign of a woman's honour and her beliefs that sexuality should be kept and expressed in the context of marriage (Gerholm, 2003; Izugbara, 2007; Smerecnik et al., 2010). According to Zaleski and Schiaffino (2000), sexually active young people had lower religious identification than did sexually inactive young people. As such, religious teachings encouraged young people to abstain from any sexual activity (Campbell et al., 1992) and also prevented them, by default, from engaging in risky sexual behaviours. This suggests that religiosity could be associated with the decision of whether or not to engage in sexual activity. This implied that adding sexual status to the proposed TPB Safer Sex model alongside religiosity as a background factor could show an

association with the dynamics of the relationship between sexual status and religiosity and then indirectly with safer sex intentions.

Studies examining religiosity (discussed above) might suggest that religious beliefs exert social control over Australian high school students' sexual behaviour and attitudes. Hence, the question arose as to whether religiosity was one of the reasons why some South Australian young people remained sexually inactive and if religious beliefs exerted a direct or indirect effect on South Australian young people's safer sex intentions. An indirect effect on safer sex intentions could be through religious beliefs, which influence sexual status (i.e. being sexually active or inactive). As such, sexual status could be a possible antecedent to safer sex intentions, while religious beliefs would be predictive of sexual status. Therefore, religion could indirectly influence safer sex intentions, act as a background factor, and influence one's safer sex attitudes, subjective norms, and perceived behavioural control.

2.4.6 **Sex Education**

Health education, according to Butler (1994), is defined as "a process with intellectual, psychological, and social dimensions relating to activities which increase the abilities of people to make informed decisions affecting their personal, family, and community well-being" (p. 17). This process facilitates both learning and behavioural change in children and youth (Butler, 1994). Sex education is part of health education that plays a role in reinforcing values for healthy and safer sexual relationships such as "reciprocity, equality, responsibility and respect" (UNAIDS, UNFPA, UNICEF, WHO, & UNESCO, 2009, p. 5).

In Australia, relationships and sex education are covered in the formal curriculum's Health and Physical Education section (ACARA, 2016). While it is expected that sex education will be included as a mandatory topic in the curriculum in SA schools, sex education programs vary in

coverage (Milton, 2003). In South Australia, parents are given the right to withdraw their children from participating in the school's sexual health programs (Gibson, 2007). The school's principal asks parents prior to the beginning of the term or the class session to sign a 'permission note' for their child to participate in such programs (Gibson, 2007). Moreover, the school principal may also select to omit specific topics from the curriculum (Australian Government, 2014; Gibson, 2007; Johnson, 2006; Jose, 1999; Peppard, 2008; Talukdar, Aspland, & Datta, 2013). Sex education topics such as safer sex, therefore, are covered differently across Australian schools. The social and religious environment plays a role in the delivery of sexual health topics (Gibson, 2007). Teacher's knowledge, training, and confidence (Barwood, 2017), in addition to the presence of safer sex resources (Hirschler, Hope, & Myers, 2015), can also be critical factors in the process of choosing and delivering sex education in schools. In the process of selecting the sexual health topics, teachers or school principals may assume that young people are still sexually inactive and, as a result, STIs and safer sex topics may not be covered in the program (Milton, 2003). Moreover, in her research, Milton (2003) found that teachers might also worry about parents' reaction to them delivering such a sensitive topic. As a result, safer sex would not be addressed in the school's sexual health curriculum.

In South Australia, a specific sex education program, "Teach it like it is" was developed early in 2000 by Sexual Health Information Networking and Education in South Australia Inc (SHine SA), in collaboration with the Department of Education and Children's Services and the Department of Health (SHine SA, 2011; Johnson 2006). In 2003, this program was trialled in public and independent schools and implemented after a long period of public debate (Gibson, 2007; Johnson, 2006). Although the "Teach it like it is" program was developed between 2000 and 2003, this program is still current in South Australian schools, mainly in public schools.

SHine SA's sex education program is reviewed annually based on the teachers' and students' feedback and the emerging issues (SHine SA, 2021). This sexual health program aims to "increase young people's agency to enjoy intimate relationships and reduce possible harms" (SHine SA, 2011, p. 5). The program covers topics related to 'puberty', 'love, attraction and desire', 'diversity, gender and power', 'vulnerability and responsibility including consent', 'pornography', and 'sexual health decisions' such as safe and unsafe practices, STIs, contraceptive methods and condom use. Constructivist teaching methods are advocated for teaching these topics, including discussion, brainstorming, debates, role-plays, and so on (SHine SA, 2011).

Catholic schools in South Australia call their sex education program "Made in the Image of God" (MITIOG), with the curriculum taught based on the year level group of the students. This program focuses on essential Catholic values and specific aspects of the human being such as "Being Human", "Being Sexual", "Being Connected", and "Being Moral" (Catholic Education, 2010, p. 3). This program is grounded in Catholic moral teaching, in which sexuality is seen as "integral to the human person, is a gift from God through which we can live out our vocation to love" (Catholic Education, 2010, p. 5). Other Christian schools, in addition to some state and independent schools, use different sexual health programs such as the "be READY" (be READY, n.d) and "The Rite Journey" (The Rite Journey, n.d) programs. All these programs promote abstinence until the individual is legally married. These religious schools have their own sex education programs because the programs fit under the permanent legislative exemptions based on faith allowed by the government and the educational authorities (Australian Parliament House [APH], 2018).

Schools play an essential role in the delivery of sexual health education, and they have the opportunity to increase young people's knowledge, improve their skills, and have a positive effect on their health outcomes by educating them about their sexual health (DiCenso, Guyatt, Willan, & Griffith, 2002). Lack of sex education can result in young people being ill-equipped to deal with the realities of being sexually active, such as the risks of STIs (Rogers & Earnest, 2015). Indeed, an adequate and appropriate quality sex education program is considered to be a source of sexual health information with significant impacts: limiting and delaying risky sexual behaviours among young people; delaying initiation of sex; reducing the number of sexual partners; reducing frequent intercourse; and increasing contraception use (Kirby, 1995; 2002; 2011). Rawson and Liamputtong (2010) argued that young people would be informed and able to make sound decisions regarding their personal safer sex choices due to participating in such programs.

Sex education was also found by King, Vidourek and Singh (2014) to reduce the stigma associated with buying condoms, as it contributed to reducing the embarrassment level when purchasing. Kirby and Laris (2009) reviewed 55 studies of curriculum-based programs, determining whether they were abstinence or sex education programs. Their review revealed that sex education programs had a significant positive impact on young people's sexual behaviour, such as increasing condom use. Sex education programs also significantly affected condom use intentions, positive attitudes towards condom use, self-efficacy, and improving the partner's safer sex communication. Similarly, Kirby (2011) conducted another study that highlighted the impact of school sex education programmes and their significant role in influencing young people's sexual behaviour. Kirby (2011) noted that sex education increased condom use and increased knowledge about human sexuality for young people.

Shin, Park, and Cha (2011) reported that sex education positively influenced young people's sexual health risk factors. Sex education primarily reduced the rates of unplanned pregnancy for females and STI rates for males by encouraging them to practise safer sex (Shin et al., 2011). Moreover, a quasi-experimental study by Jalambadani, Garmarodi, and Tavousi (2017) examining the effect of sex education among married women in Iran supported this view. Their study found a significant effect of sex education on the antecedents of safer sex intentions. By applying the TPB, they noted that married women who had a sex education intervention had their attitude and PBC meaningfully increased compared to the control group. These findings suggest that sex education may act as a background factor for safer sex intentions. Sex education was thus worth testing on the TPB model as a possible distal (background) factor that might directly affect the antecedents of safer sex intentions.

According to Butler (1994), health education, including sexual health education, occupies a significant role in developing young people's attitudes to health, in gaining the knowledge necessary to make healthy decisions, and in improving self-efficacy and self-image. However, despite sex education being taught in SA schools, it appears that the rates of STIs are still increasing.

In South Australia, there are different sex education programs, and each program has specific learning objectives that range from a focus on abstinence (Catholic Education, 2010) to comprehensive sex education (Johnson, 2006). This suggests that sex education can be a possible background variable that may directly influence young people's attitudes, subjective norms, and perceived behavioural control when having a sexual encounter, and indirectly influence their safer sex intentions. There is, therefore, an urge to investigate the association between sex education and South Australian young people's safer sex intentions. Sex education can likely

contribute to changes in safer sex behaviour. It is thus important to determine its role concerning safer sex practices.

If sex education directly affects attitudes and perceived behavioural control to practise safer sex then, according to TPB, sex education would indirectly influence an individual's intention to practise safer sex. Sex education would therefore generate beliefs and associated attitudes, subjective norms, and perceived behavioural control. Based on the reviewed literature above, sex education was identified as an additional background factor in the proposed safer sex use extended TPB model, as shown in Figure 2-1.

2.5 Proximal (antecedent) factors of the TPB Safer Sex Model

The TPB model postulates that TPB is open to being extended by either adding background factors or antecedents. Antecedents are considered as variables or factors that have a direct effect on safer sex intention. This section reviews the literature and identifies possible antecedents that could be added to the expanded TPB safer sex model based on the five criteria suggested by Fishbein and Ajzen (2009). These possible antecedents are the partner's expectations and substance use.

2.5.1 Partner's Expectations

The frequency of condom use has been shown to be associated with the characteristics of the sexual partnership, whether it is casual or steady. Fortenberry, Tu, Harezlak, Katz, and Orr (2002) found that higher condom use was more frequently reported in newly established relationships with a casual partner than in established relationships. These findings could be attributed to the nature of the casual or new relationship, which is seen as posing a greater risk of acquiring an STI due to the partner's sexual history being less clear (Brown, 2015; Senior et al., 2014; Williamson, Buston, & Sweeting, 2009).

The practice of safer sex involves interaction and negotiation between both sexual partners (Parsons, 2013). For women, sexual behaviour can occur in circumstances of unequal gender power, especially in a heterosexual relationship where women are more likely to feel powerless to request condom use (Amaro, 1995; de Visser & Smith, 1999). In a heterosexual relationship, "for men, the behaviour is wearing the condom; for women, the behaviour is persuading the male partner to wear a condom, or in some cases, deciding not to have sex when the male partner refuses to wear a condom" (Amaro, 1995, p. 440).

Furthermore, a qualitative study conducted by Lotfi, Tehrani, Yaghmaei, and Hajizadeh (2012) among Iranian women aged 21–49 years, revealed that having the desire, positive attitude, and intention to practise safer sex was not seen as sufficient to affect the safer sex decision to engage in protective behaviour. In their study, low self-esteem and low self-efficacy were also found as barriers to safer sex practice. Lotfi et al. (2012) argued that sexual behaviour requires both partners to be involved in the sexual decision making, not just one partner.

Fishbein, Von Haeften, and Appleyard (2001) reported that condom use was a male behaviour, whereas condom negotiation was more likely to be characteristic of female behaviour. It appears that young women are expected to communicate with young men about condom use. De Visser and Smith (1999) noted that men were left unable to negotiate condom use with their partners. The researchers attributed this to the traditional equation of femininity and masculinity in a heterosexual relationship. Traditional male and female stereotypes make it difficult for women to request condom use and, likewise, it is difficult for men to discuss sexual behaviour. Thus, in a heterosexual relationship, males might feel that their masculinity and right to sexual satisfaction via vaginal intercourse might be challenged. By contrast, Groes-Green (2009) found

that young males who consistently used condoms revealed that using condoms made them feel strong, in control, safe, protected, and was a way of showing respect to their female partner.

Fishbein and Ajzen (2009) suggested that partner norms could be added to a TPB model for safer sex, even though partner norms failed to meet the fourth criterion: "the factor considered should potentially be applicable to a wide range of behaviours studied by social scientists" (p. 285). Other studies have since shown that condom use can be affected by the type of partnership and a partner's intentions to use condoms (Smith et al., 2012; Song, 2014; Whitaker et al., 1999). These studies suggested an association between safer sex use and the confidence sexual partners had to negotiate safer sex as perceived behavioural control. Being confident to communicate with the sexual partner is crucial for young people to practise safer sex (Lotfi et al., 2012).

From their research, de Visser and Smith (2001) concluded that negotiation skills, prior agreement and confidence in condom use among Victorian young people were significantly associated with promoting consistent condom use during sexual activity. Self-efficacy at the time of having sex was also a strong predictor of safer sex practices. A meta-analysis study by Noar, Carlyle and Cole (2006) examining the relationship between communication about safer sex and condom use supported this view. Their research found that sexual communication and negotiation among sexual partners played a crucial role in health-protective behaviours such as condom use.

Negotiation skills are considered an essential determinant concerning a partner's expectations in convincing the other partner whether to use condoms or not. In other words, engaging in sexually protective behaviour requires the approval of both sexual partners and should always be negotiated. This suggests that, even in the presence of strong attitudes or

perceived behaviour control, strong intentions to practise safer sex are influenced by a partner's expectations. As such, a partner's condom use expectations would mediate safer sex intentions and safer sex behaviour and would be a proximal factor of safer sex intentions and behaviour.

Therefore, it seemed highly likely that a partner's expectations and preferences for safer sex practices would be an antecedent of safer sex intentions and worth investigating. For this present study, therefore, "partner's expectations" referred to the extent that a person felt able to practise safer sex under their partner's influence. The partner's expectations did not capture the partner's qualities, such as negotiation skills. A "risky partner" was defined as a partner who did not use or refused to use safer sex methods, such as condoms or dental dams, during sexual activity.

Few studies have examined the relationship between partner's expectations and safer sex intentions. This suggested that testing the effect of a partner's expectations on safer sex behaviour by using TPB was essential. Based on the reviewed literature above, partner's expectations were identified as a possible antecedent in the TPB safer sex model, as shown in Figure 2-1.

2.5.2 **Substance Use**

Results of the 6th National Survey of Australian Students in Years 10–12 revealed that more than one-third of the surveyed high school students (34.6% males, 34.3% females) cited 'being drunk' as one of the reasons for experiencing unwanted sex (Fisher et al., 2019). This indicates that substance use could be another factor that influences young people's sexual behaviour.

Substance use, such as the consumption of alcohol and illicit drugs, has received much research attention in relation to safer sex. Global studies have found a complex association

between alcohol use and risky sexual behaviour, which is more likely to be positively associated with heavy alcohol consumption (Blignaut, Vergnani, & Jacobs, 2014; Leigh & Stall, 1993). In their research, Blignaut et al. (2014) and Cooper (2006) found that young people who engaged in unsafe sexual intercourse were mainly under the influence of substances such as alcohol. Similar results were also revealed by Semple, Patterson, and Grant (2004), who found that being under the influence of illicit drugs was one of the reasons young people engaged in unprotected sexual behaviour. Cooper (2006) and Cooper and Orcutt (2000) noted that individuals who consumed alcohol before their sexual intercourse were less likely to use condoms and practise safer sex behaviours. Indeed, individuals who consumed alcohol were more likely to become sexually active and engage in risky sex (Hingson et al., 1990; Lally et al., 2014; Patrick & Maggs, 2009; Salameh et al., 2016; Tura et al., 2012; WHO, 2014a). These findings suggested an association between alcohol consumption and risky sexual behaviour.

Furthermore, Brown (2015) noticed that young people who engaged in risky sexual behaviours and did not use condoms, particularly in casual relationships, provided reasons for their behaviour such as “being drunk”, “too nervous to negotiate using one”, or “lack of empowerment”. More specifically, “partying” and “having a good time” when mixed with sex and substance use facilitated unsafe sex (Ellis, 2016; King et al., 2014).

Wand et al. (2016) conducted a study with young Australian Aboriginal people aged 16–29 years. They found that illicit drug use and alcohol were strongly associated with risky sexual behaviours and STI diagnoses. Alcohol was noted as one factor contributing to participation in casual, unprotected sex and affecting sexual decision-making between partners (Cooper & Gordon, 2015), leaving partners vulnerable to the acquisition of STIs and becoming pregnant (Hingson et al., 2005).

Alcohol may also be consumed to increase confidence and overcome shyness during sexual activity. Coleman and Cater (2005) found that one-third of young people in southern England (aged between 14 and 17 years) consumed a minimum alcohol level to increase their level of attraction to prospective sexual partners. Heavy alcohol use, however, causes impaired judgment in risky situations. Coleman and Cater (2005) found that study participants indicated that they sometimes experienced a complete loss of control, memory loss, and a "black-out". Regret was also expressed after practising unsafe sex while individuals were under the influence of alcohol. The researchers found, however, no statistically significant difference in substance use according to age or gender. These results have also been reported in other studies (Patrick & Maggs, 2009; Prat, Planes, Gras, & Sullman, 2015; Protogerou et al., 2013).

Several researchers (Bolton, Vincke, Mak, & Dennehy, 1992; Coleman & Cater, 2005; Conner, Graham, & Moore, 1999; Leigh, 2002) have indicated that understanding the relationship between alcohol use and risky sex is not simple. These researchers have suggested that alcohol consumption does not always lead to unprotected sex. Leigh (2002) conducted a meta-analysis on thirteen international studies that showed drinking alcohol was not associated with unprotected sex; instead, the association between alcohol consumption and unprotected sex depended on other factors such as age, a partner's sexual experience, and the type of partnership. The results also revealed that alcohol consumption among adolescents was only associated with unsafe sex during their first intimate sexual activity. Alcohol use, however, was not linked to safer sex use in later sexual encounters and later encounters with new partners.

Similarly, Hensel, Stupiansky, Orr, and Fortenberry (2011) found no association between alcohol or marijuana use and condom non-use. Instead, they found safer sex use was based on one's consistent behavioural pattern of using condoms every time they engaged in an intimate

relationship. Interestingly, Patrick and Maggs (2009) found that first-year college students in the United States were more likely to engage in oral sex when they were under the influence of alcohol, which provided no risk of pregnancy and lowered the STI risks. The authors suggested that oral sex was practised due to less commitment and intimacy in the relationship compared to having penetrative sex.

A study conducted by Stark and Hope (2007) among a cohort of Aboriginal women in remote central Australia, where higher rates of STIs have been detected, found low rates of condom use. Young Aboriginal women commented that they had "big worries" (p. 241) about contracting STIs because of the high rates of their partners' sexual infidelity, further complicated at times by sexual violence, alcohol use, and multiple partners. These young Aboriginal women aged 18–35 years stated that it was unlikely their partners would use condoms, especially when they were under the influence of alcohol. Even though young Aboriginal women had a positive attitude towards condom use, some reported that they did not negotiate condom use with their partner or have access to condoms due to "the feeling of shame" (Stark & Hope, 2007, p. 240) linked to traditional Aboriginal cultural and gender-specific behavioural norms.

A study of alcohol consumption by Davis et al. (2014) found a negative association between alcohol use and women's intentions to use condoms. They found that alcohol consumption moderated women's condom use, self-efficacy, and intentions to engage in condom negotiation. Similar results were found by Connor, Graham, and Moore (1999), who highlighted that alcohol intoxication moderated the effect of perceived behavioural control to practise safer sex and influenced safer sex intentions. This would suggest that alcohol use could be a predictor of perceived behavioural control and attitudes to safer sex intentions.

Several researchers have highlighted the influence of substances, such as alcohol and drugs, on safer sex intentions, where it is unlikely for safer sex to be enacted when one or both partners is under the effect of substances (Blignaut et al., 2014; Cooper & Gordon, 2015; Semple et al., 2004). A study conducted by Conner et al. (1999) noted that intoxication moderated the effect of perceived behavioural control to practise safer sex and affected safer sex intentions. It was, therefore, possible that substance use was a background variable influencing the major TPB intention antecedents of attitudes, subjective norms, and PBC.

Overall, there are inconsistent findings regarding the influence of substance use on young people's safer sex decisions, whether being under the influence of substances increases unprotected sexual behaviour or facilitates safer sex use. Therefore, including substance use as a proximal (antecedent) factor and a background factor in the TPB Safer Sex model would allow it to be tested to determine the influence of substance use on safer sex intentions.

2.6 Research Questions that Guided This Study

The reviewed literature discussed above highlighted the impact of demographic and psychological factors on young people's sexual behaviour and safer sex intentions, yet the relationship between several factors, such as parent/carer–teenage sexual communication, partner's expectations, previous school sex education, religiosity, sexual status, age, and substance use, on safer sex intentions were not well researched or understood. Understanding relationships between these factors is important to inform a possible intervention to promote safer sex practices among young people. This literature review enabled the researcher to identify and highlight potential, influential factors to extend the TPB Safer Sex model and provide evidence for their inclusion.

Reviewing previous studies revealed several factors that played unclear roles in safer sex intentions, regarding whether they were playing proximal or distal roles. The role of age, parent/carer–teenage communication, sexual status, and sex education in the intention–safer sex association was not clear in the reviewed literature. Thus, these factors were first treated as background factors in the extended TPB model. Due to contradictory results in terms of its association with intention–safer sex use, religiosity was added to the extended model as a possible background factor. Partner's expectations and substance use were added to the extended TPB model due to the majority of the reviewed literature indicating that they played roles as antecedents to safer sex intentions.

In the TPB Safer Sex Model illustrated in Figure 2-1, several additional factors were proposed to predict safer sex intentions. As background factors, they included age, gender, religiosity, parent/carer–teenage communication, sex education, and sexual status, and as antecedents, they included partner's expectations, and substance use, in addition to attitudes, subjective norms, and perceived behavioural control. In sum, the TPB of Safer Sex intentions was extended in this study by adding other background factors and antecedents to safer sex intentions.

In summary, the reviewed literature guided the researcher to pose the following research questions. Hence, this study sought to determine:

1- What factors are required to extend the TPB safer sex model based on the factors identified by reviewed literature? and

2- By applying Structural Equation Modeling (SEM), does the proposed extended TPB safer sex model fit the observed data in explaining young SA people's intentions to safer sex use?

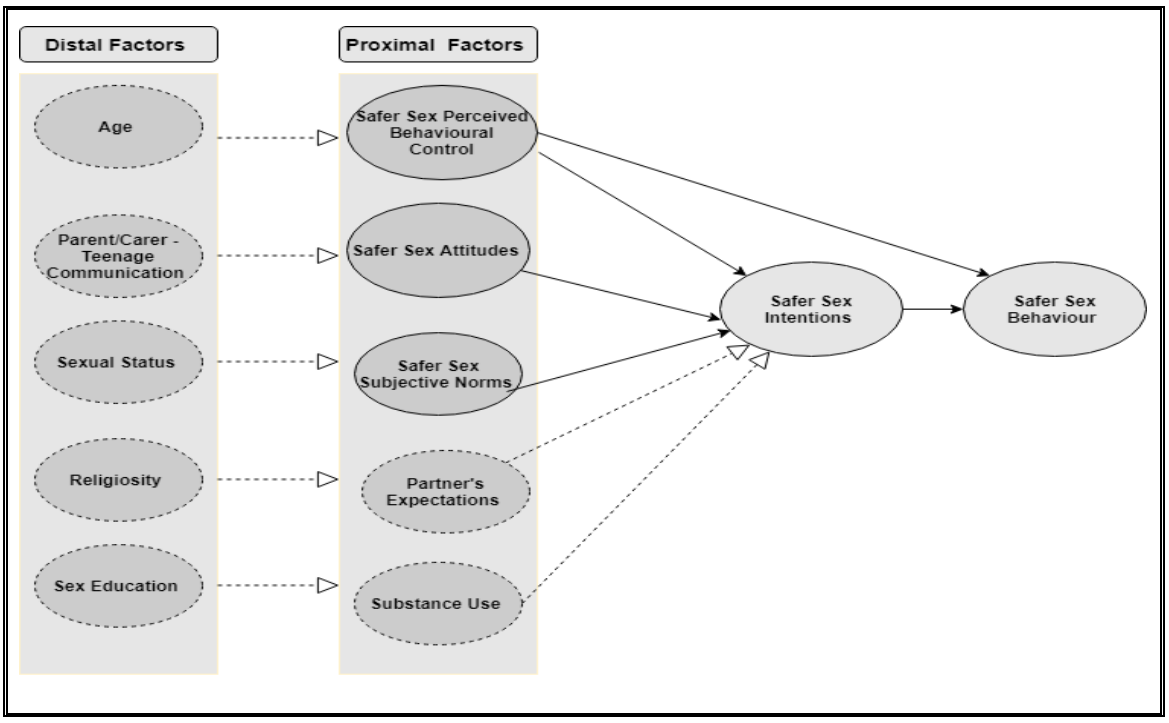

Figure 2-1: Proposed Extended TPB Model of Safer Sex Intentions. " Figure Reproduced with Permission" (Note: Dash borders indicate that the role of the factor as whether distal or proximal is unknown).

3- METHODS

To understand South Australian young people's safer sex intentions, a purpose-built questionnaire that included TPB items was developed following the procedure suggested by Francis et al. (2004) (discussed later in this Chapter). A crucial step before conducting the main study was to conduct a pilot study (Van Teijlingen, Rennie, Hundley, & Graham, 2001), which was needed to test all the individual TPB items' internal consistency and reliability scales and to test the demographic questions in the questionnaire. Following the pilot study, the main quantitative study was conducted. This Chapter describes the pilot study and explains the development of the instrument used in the main study, titled "Let's Talk About Safer Sex".

3.1 Research Design

The study used a quantitative, cross-sectional research design (Mann, 2003) to test the proposed antecedents and background variables of young people's intentions to practise safer sex in the Safer Sex TPB model. This empirical method provided a 'snap-shot' of the population at a single point in time, quickly and inexpensively (Maltby, Day, McGarry, & Williams, 2010). Although a longitudinal study would have been a better choice for this study, especially to look at the strength of the relationship between the identified antecedents and safer sex intentions of safer sex over an extended period of time (Pascal Sheeran et al., 1999), a study of that kind was not possible in the time frame available.

As this is common in TPB studies (Ajzen et al., Guo et al., 2014; Protogerou et al., 2013; 1996), a quantitative approach was used so that South Australian young people's sexual behaviour and safer sex intentions, attitudes, perceived behavioural control, and subjective norms could be measured.

Several studies have previously been conducted in Australia to investigate young people's sexual behaviour. A study by de Visser, Smith and Richters (2005) with Australian men and women aged 16–59 years found a difference in the sexual behavioural activities between university students and their same-age peer group. The researchers found that first-year undergraduate women were more likely to practise safer sex the first time they had vaginal intercourse than were their same-age peers. In the 5th National Survey of Australian Secondary Students and Sexual Health, for young people aged between 16 and 19 years (Years 10 to 12), Mitchell et al. (2014) found that the majority of young Australians (69%) in high school had some sexual experience. Students in Year 12 were more likely than those in Year 10 to have had a sexual experience (50.4% v 22.7%). Notably, one-third of the surveyed sexually active students reported using a condom during vaginal sex and half of them had used a condom during their last vaginal or anal sexual activity (Mitchell et al., 2014).

The findings discussed in the above paragraphs highlight that: young people are experiencing sexual activity during their high school years and their level of sexual activity will increase when they reach university; young Australians' sexual activity increases as a function of their age; young people who go to university are more aware of the importance of consistent use of safer sex. Therefore, it is important for young people, whether or not they decide to go to university, to be prepared and motivated to practise consistent safer sex, mainly to prevent the acquisition of STIs. The rates of STIs in South Australia among this age group are high and alarming (SA Health, 2016). For this reason, only young people aged 18–24 years, who lived in South Australia and had undertaken their high school studies there, were recruited for this study.

The methodology and research design used in this study enhanced the ability to collect more accurate data from participants (Musch, Bröder, & Klauer, 2001). It also helped the

participants feel more comfortable in providing their honest opinions about safer sex questions (Gibson & McAllister, 2009) via completing an anonymous online questionnaire. The resultant data also facilitated conducting statistical aggregation of the datasets (Patton, 2002). The pilot study followed the suggestion of Teddlie and Tashakkori (2009) to "test drive" the procedure and identify possible problems in data collection by pre-testing the self-developed questionnaire items in the Safer Sex TPB model.

3.2 Instrument Development

In the first stages of the study, questionnaire items for the Safer Sex TPB instrument were self-developed based on Francis et al.'s (2004) suggestions. The instrument development included developing questions that would test the TPB constructs, such as attitudes, subjective norms, perceived behavioural control, and safer sex intentions. Section 3.2 discusses the process of developing the study instruments to be piloted before conducting the main study.

3.2.1 Instrument

The pilot questionnaire consisted of two sections. At the beginning of each section, participants were provided with definitions regarding the terms used, such as safer sex and the definition of a partner. Safer sex was defined as the "use of condoms or dental dams". Partner was described as "anyone that participants might sexually engage with, such as a casual partner, girlfriend, boyfriend, wife, husband, or sex worker". In this study, the types of questions asked ranged from multiple choice to open-ended questions.

Section One of the questionnaire included demographic and sexual health behaviour questions. In contrast, Section Two was constructed based on the Francis et al. (2004) manual for developing a questionnaire on the TPB model (discussed in detail below in Sections 3.2.1.1 and 3.2.1.2). The questionnaire was designed in Survey Monkey as it was to be delivered online.

3.2.1.1 Section One: Demographic and Sexual Health Questions

Questions for Section 1 were selected from the "Sexual Health and Awareness Study Instrument" (SHASI) developed by Lally et al. (2014). The SHASI instrument contained 44 questions that asked the participants about demographic characteristics, sexual health, and knowledge and awareness of STIs. In their study, Lally et al. (2014) investigated sexual awareness, attitudes, and knowledge of sexual health and STIs and risky sexual behaviour among university students aged 18–24 years, many but not all of which fitted the selection criteria for this study. The knowledge questions were not selected because it was not the aim of the study to assess South Australian young people's STI knowledge. Also, attitudes items from Lally et al. (2014) were not selected because, as discussed below, the researcher designed a set of attitudes questions for Section 2 of the questionnaire.

As noted, sexual health questions for the pilot study were adapted from Lally et al.'s (2014) questionnaire. Written permission to use and modify SHASI instrument was sought from Lally et al. (2014). The instrument and the questions selected for this study are shown in Table 3-1. Items were selected based on the study objectives and their roles in helping to understand the participants' sexual health. In Lally et al.'s (2014) questionnaire, participants were asked whether they were taught sex education or not and, if they were, whether they found it useful or not. Similarly, in this study, participants were asked about sex education, but the items were modified. The modification included replacing "secondary school" with "during the high school level years 7–12" because in SA high school starts at year 7. This modification was applied to all the selected items that included the phrase "secondary school". Table 3-1 shows the items about sex education that were selected and how they were modified to fit the context of SA sex education. Knowing that there are different sex education programs in SA, it was important to

make clear which program was useful. For this reason, an additional question was added to the usefulness of the taught sex education program: participants were asked if they remembered the sex education program and then whether they found the sex education program useful or not.

Likewise, participants were asked about whether the sex education program included content for STIs and contraception or not and whether they found the received information useful. These items were included to provide information about the participants' knowledge background about STIs and contraception use.

In Lally et al.'s (2014) questionnaire, participants were asked to rate their current knowledge of sex, contraception and pregnancy; however, the present study focused on safer sex use as being the use of condoms and or dental dams as a form of contraception. Thus, it was important to ask the participants about their contraception knowledge only. As a result, the item "How would you rate your current knowledge of sex, contraception and pregnancy?" was modified to "How would you rate your current knowledge of contraception?" without modifying the response options "Very good—I am very knowledgeable", "Good—I know a lot but there are things I am unsure of" and so on, as listed by Lally et al. (2014).

Knowing that the rates of STIs are high in South Australia, it was important to ask participants if they had attended a health clinic for an STI test or advice. As shown in Table 3-1, Lally et al.'s (2014) questionnaire included items about attending a family planning clinic, sexual health clinic or General Practitioner (GP) for sex advice and another item for advice about STIs. These two items were modified to fit the study objectives. Thus "advice about sex", which was not within the study objectives, was replaced with "STI testing" while the item asking about "advice for STI" was kept without modification. Lally et al. (2014) asked participants, "from which of the following were you aware you could receive STI test?". The listed options were

sexual health clinics in Limerick, Ireland; thus, the same item stem was used in the study, but the listed options were revised to fit the sexual health clinics located in South Australia: Clinic 275, SA MEESH, Shine SA, Health services such as GP, HIV PEP.

An item about the types of contraception that participants used was selected, with some modification. Lally et al. (2014) had asked the participants, "which types of contraception have you used within the last 2 years?". Lagarde, Enel, and Pison (1995) and Kauth, St. Lawrence, and Kelly (1991) had suggested that the reliability of self-reported sexual behaviour such as condom use or dental dam use decreased with a more extended recall period and, thus, a recall bias occurred. As a result, a 6-month time frame was used instead of 2 years for contraception self-reporting. Since sexually inactive young people were invited to take part in this study, it was possible that this item would not apply to their situation, and a 'non-applicable" response was added to the response list suggested by Lally et al. (2014). Also, the term 'dental dam' was added to the item because it is a form of contraception and, in this study, safer sex use was defined as the use of condoms or dental dams.

It was important to identify the reasons behind safer sex use among the participants and the reasons that prevented safer sex use, therefore items about condom use, listed in the Lally et al. (2014) questionnaire as "if you ever had sex without a condom, please give reasons" and "if you ever had sex with a condom, please give some reasons", were selected. Similar to the modifications applied to previous items, a 'non-applicable" response was added to enable sexually inactive participants to respond. Also, the term 'dental dam' was added to these items as "a condom or dental dam".

Table 3-1: Sexual Health and Risky Behaviour Questions Used in the Instrument

Source: Sexual Health and Awareness Study Instrument (Lally et al., 2014)	*Instrument Item*	*Modified from SHASI*
Did you receive any sex education **in secondary school?** Yes/No/Unsure 1- a- If Yes, did you find the information you received useful? I found it very useful/I found it somewhat useful/I did not find it useful	Did you receive any sex Education **during the high school (Year 7-12)?** Yes/ No/ Unsure If No or Unsure Selected: Skip to next question. If yes selected, a- Did you find the information you received useful? I found it very useful / I found it somewhat useful/ I did not find it useful. b- **Do you remember what sex education program has been taught? Yes/ No/ Unsure** If No or Unsure Selected: Skip to next question. If yes Selected: c- **If you remember, what was the sex education program called: Teach it like it is (SHine SA)/Made in the Image of God / be READY/ The Rite Journey/ Others (Specify)**	Yes – "secondary school" was replaced with "during high school (year 7-12)". Additional items were added to test if participants still remember the sex education program name
Did you receive any education **on STIs (sexually transmitted infections) in secondary school**? Yes/No/Unsure If Yes, did you find the information you received useful? I found it very useful/I found it somewhat useful/I did not find it useful	Did you receive any education on sexually transmitted infections (STIs) **during your high school (Year 7-12)?** Yes/ No/ Unsure If No or Unsure Selected: Skip to next question a- If yes, did you find the information useful? I found it very useful/ I found it somewhat useful/ I did not find it useful	Yes- "STIs in secondary school" was replaced with "during your high school (year 7-12)".

Table 3-1: Continued: Sexual Health and Risky Behaviour Questions Used in the Pilot Study

Source: Sexual Health and Awareness Study Instrument (Lally et al., 2014)	*Instrument Item*	*Modified from SHASI*
Did you receive any education on **contraception in secondary school**? Yes/No/Unsure If Yes, did you find the information you received useful? I found it very useful/I found it somewhat useful/I did not find it useful	Did you receive any education on contraception **during your high school (Year 7-12)?** Yes/ No/ Unsure If No or Unsure Selected: Skip to next question If yes, did you find the information useful? I found it very useful/ I found it somewhat useful/ I did not find it useful	Yes- "contraception in secondary school" was replaced by "during your high school (year 7–12)".
How would you rate your current knowledge **of sex, contraception and pregnancy**? Very good—I am very knowledgeable Good—I know a lot but there are things I am unsure of OK—I know some things but there are many things I am unsure of Quite poor—I am quite unsure about this topic Very poor—I am very unsure about this topic	How would you rate your current knowledge of **contraception**? How would you rate your current knowledge of **pregnancy**? Very Good – I am very knowledgeable Good – I know a lot but there are things I am unsure of Ok – I know some things but there many things I am unsure of Quite poor – I am quite unsure about this topic Very poor – I am very unsure about this topic	Yes- "sex, contraception and pregnancy" was replaced using two of the items to test "contraception" and "pregnancy" knowledge only.
Have you ever attended a family planning clinic, sexual health clinic or your own GP for advice about **sex?** Yes/No/Unsure Have you ever attended a family planning clinic, an STI clinic or your own GP for advice about STIs? Yes/No/Unsure	Have you ever attended a family planning clinic, sexual health clinic or your own GP for advice about **STI testing**? Yes /No/Unsure Have you ever attended a family planning clinic, sexual health clinic or your own GP for advice about STIs? Yes/ No/ Unsure	Yes- "sex" was replaced by "STI testing"

Table 3-1: Continued: Sexual Health and Risky Behaviour Questions Used in the Pilot Study

Source: Sexual Health and Awareness Study Instrument (Lally et al., 2014)	*Instrument Item*	*Modified from SHASI*
From which of the following were you aware you could receive an **STI test**: Click all or any that you were aware of **UL Medical Centre /Limerick Family Planning Clinic, Mallow Street Limerick/ Limerick STI Clinic Limerick Regional Hospital, Dooradoyle/ None/ Other:**	From which of the following were you aware you could receive an **STI test**: **Clinic 275 /SAMESH (SA Mobilisation and Empowerment for sexual Health) / SHine SA/ Health Services: such as your GP/ HIV PEP/ None.**	Yes – STI clinic names were updated with South Australian STI clinic names
Which types of contraception have you used within the **last 2 years**? Condoms/Oral contraceptive pill/Coil/Natural family planning/ Withdrawal method/ Injectable/implanted contraceptive/None/ Other:	Which types of contraception have you used within the **last 6 Months**? Condoms/ Oral contraceptive pill/ IUD/ Natural family planning/ withdrawal method/ implanted contraceptive/ **Dental dam**/None/ **Not applicable**/ Other	Yes- "2 years" was replaced by "6 months". Also, "Dental dams" and "Not applicable" options were added.
If you ever had sex without a condom, please give some reasons: We used other forms of contraception (e.g. pill)/ We got carried away in the heat of the moment/ We did not have access to condoms/ We were of the same gender so there was no pregnancy risk/ We are trying to get pregnant/ Due to alcohol or drug consumption condoms were ignored/ Other:	If you ever had sex without a condom **or dental dam**, please give some reasons: We used other forms of contraception (e.g. pill)/ We got carried away in the heat of the moment/ We did not have access to condoms/ We were of the same gender so there was no pregnancy risk/ We are trying to get pregnant/ Due to alcohol or drug consumption condoms were ignored/ **Not Applicable**/ Other:	Yes- "Dental dam" was added to the item and "Not applicable" was added to the possible reasons.

Table 3-1: Continued: Sexual Health and Risky Behaviour Questions Used in the Pilot Study

Source: Sexual Health and Awareness Study Instrument (Lally et al., 2014)	*Instrument Item*	*Modified from SHASI*
If you ever had sex with a condom, please give some reasons: Chief method of contraception/ Backup method of contraception/ Prevent transmission of STIs/ Other:	If you ever had sex with a condom **or dental dam** please give some reasons: Chief method of contraception/ Backup method of contraception/ Prevent transmission of STIs **/** **Never/ Not applicable/** Other	Yes- "Dental dam" was added to the item. "Never" and "Not applicable" were added to the possible list of reasons.

3.2.1.2 Section Two: TPB Antecedents of Safer Sex Intention

The second section included questions concerning antecedents for the Safer Sex TPB model. Francis et al. (2004) suggested defining the target behaviour by being clear about Target, Action, Context and Time (TACT). First, the target population of interest should be defined, for example, South Australian young people. Then, the behaviour should be defined by invoking the TACT. In this case, the Target was South Australian young people, the Action was safer sex use, the Context was to prevent the acquisition of STIs or/any unplanned pregnancy, and Time was every time having sexual activity. The process of designing the questions for the Safer Sex TPB antecedents is discussed below.

Attitudes: Ajzen (1991) and Ajzen (2002) suggested that attitude, as an individual's subjective evaluation of behaviour, comprises two components: experiential and instrumental. Experiential attitude is an individual's affective feelings toward a behaviour, such as using safer sex is a pleasant behaviour. Instrumental attitude refers to an individual's evaluation of a behaviour's outcome, such as safer sex use ruins the heat of the moment. Francis et al. (2004)

suggested using a semantic (bipolar) differential scale to test attitudes, noting that the use of four items with one stem and with a mix of positive and negative endpoints was an ideal number to test attitudes. Attitude items included instrumental and experiential dimensions, such as safer sex use is beneficial/harmful and unpleasant/pleasant, respectively. Attitudes toward safer sex were assessed following this recommendation.

Based on the reviewed literature, five (rather than four) items were developed for the semantic differential scale to measure attitudes (see Table 3-2). The phrases developed for the semantic differential scale and used to measure attitudes were based on studies conducted by Newton, Newton, Windisch and Ewing (2012) and Brown (2015). In their research, Newton et al. (2012) found that young people had behavioural beliefs that prevented their safer sex use, including that safer sex "make[s] sex less romantic", "make[s] sex less enjoyable", "reduces sexual pleasure", and is "…an annoying interruption to sex" (p. 446). Similarly, Brown (2015) revealed reasons young people did not practise safer sex: participants reported that they did not like using condoms and using condoms was less enjoyable during the sexual activity. Also, condoms were not used due to the respondents getting caught up 'in the moment' (p. 316). However, participants who used safer sex methods considered their use as responsible behaviour.

Therefore, the semantic ends used in this study were 'Unpleasant/Pleasant', 'Bad Practice/Good Practice', 'The wrong thing to do/The right thing to do', and 'Ruining the heat of the moment/Not ruining the heat of the moment'. The Francis et al. (2004) recommendation to use a 7- point scale when measuring TPB constructs was followed. Francis et al. (2004) noted that a "7-option response format is most often recommended in the TPB literature" (p. 13).

As seen in Table 3-2, participants were asked to select the number that best reflected their response, for example, with the question "Overall I think that using a safer sex method, such as a condom or dental dam, every time I have sex with my partner in the next 6 months is…", instrumental items responses could range from "1- Harmful" to "7-Beneficial", and experiential items from "1- Unpleasant" to "7- Pleasant".

Subjective norms (SN): Francis et al. (2004) recommended the use of three items to test subjective norms, but an additional item could be used if the length of the questionnaire was not an issue. In this study, the length of the questionnaire was a concern and, as a result, the subjective norms factor was measured by three items. Francis et al.'s (2004) recommendations were to design measures that referred to the opinion of the important people in general in the life of the participants. Unlike Francis et al. (2004), a semantic differential scale as a multi-point rating scale was not used to measure SN; instead, a 7-point Likert scale was considered more appropriate. All formed items were complete sentences, and the response possibilities ranged from strongly disagree and strongly agree to use safer sex with a sexual partner, with no endpoint mix (i.e. the response scale for every item started with a negative endpoint as "Strongly Disagree" and ended with a positive endpoint as "Strongly Agree"), for example: "people who are important to me think that I should use safer sex method, such as a condom or dental dam, every time I have sex with my partner in the next 6 months", followed by a 7-point Likert scale ranging from "Strongly Disagree" to "Strongly Agree", and including a central "Neutral" point.

Perceived behavioural control (PBC): Perceived behavioural control was measured by seven items that assessed confidence and capability to practise safer sex. Francis et al. (2004) suggested that the developed items should reflect the participants' confidence and capability to perform the targeted behaviour. They also suggested that the items assess the participants' self-

efficacy and beliefs about the controllability of the behaviour. Following Francis et al.'s (2004) recommendations, PBC was assessed in this study by asking the participants to report how difficult it was to perform the behaviour and how confident they were to practise safer sex with their sexual partner. Items were formed based on other studies undertaken in this field (Wang, 2013a; DiIorio et al., 2000; Newton et al., 2012; Wilson, 2018). In their research, DiIorio et al. (2000) noted an association between communication efficacy and condom use among young people aged 18–25.

Similarly, a study conducted by Wang (2013a) indicated that communication efficacy in negotiating safer sex use was a strong predictor of safer sex behaviour. For this reason, the PBC scale in this study included items that asked participants about their confidence in discussing safer sex with the sexual partner, for example, "How confident are you that you could suggest using a condom or dental dam, every time you have sex with your partner, even if you were afraid that your partner would reject you in the next 6 months?". Controllability was also assessed by asking the participants to report whether performing the behaviour was up to them and whether there were other factors beyond their control that determined their target behaviour, for example, "The decision to use a safer sex method every time I have sex with my partner in the next 6 months is beyond my control". This item was measured by a 7-point Likert scale ranging from "Strongly disagree" to "Strongly agree", including a neutral centre.

Unsafe sexual practices were also associated with embarrassment when purchasing condoms (Newton et al., 2012) and not knowing how to use them properly (Wilson, 2018). Therefore, preparatory behaviours like buying condoms or dental dams and using them properly for safer sex with a sexual partner are essential if young people are to practise safer sex and to control their safer sex behaviour. Thus, items were formed to assess these preparatory

behaviours, for example, “How confident do you feel in your ability to use a condom or dental dam correctly on yourself or your partner every time you will have sex in the next 6 months?” and “How confident do you feel in your ability to buy condoms or dental dams without feeling embarrassed, to prepare for sex with your partner in the next 6 months?”. The response scale for these items was a 7-point Likert-type scale ranging from “Extremely not confident” to “Extremely confident”, including a central “Neutral” point.

Safe Sex intentions: Five items were used to measure South Australian young people’s generalised intention to perform safer sex. Francis et al. (2004) suggested that a format such as: “I intend to refer patients with lower back pain for an x-ray” (p. 11), should be used. Thus, an item such as, “I intend to use safer sex method, such as a condom or dental dam, every time I have sex with my partner in the next 6 months” was created. The measures were also formed based on the reviewed literature (Calzavara et al., 1998; de Visser et al., 2014; Flood, 2003; Wong, 2012). In their studies, De Visser et al. (2014) and Calzavara et al. (1998) found that condom use was associated with partner type. In other words, young people tended to use safer sex with a new and casual sexual partner. As a result, an item was formed to assess safer sex intentions with a new partner, such as, “I intend to use safer sex method, such as a condom or dental dam, every time I have sex with a new partner in the next 6 months”, and, “I intend to use safer sex method, such as a condom or dental dam, every time I have sex with my partner in the next 6 months”.

A study conducted by Wong (2012) revealed that young people tended to practise unsafe sex due to the heat of the moment and their belief that using safer sex would decrease their sexual pleasure. These results were also consistent with an earlier study conducted by Flood (2003) among young heterosexual males. For this reason, intentions items included asking

participants about their intentions to have safer sex even in the heat of the moment, such as, “I intend to stop and ask for the use of safer sex method, such as a condom or dental dam before having sex and even in the heat of the moment every time I have sex with my partner in the next 6 months”. A 7-point Likert scale, ranging from “Strongly Disagree” to “Strongly Agree”, including a central “Neutral” point, was used as a response scale for safer sex intentions items.

To refine the approach prior to conducting the pilot study, an academic staff member with expertise in the TPB and constructing questionnaires provided feedback. The feedback was incorporated into the pilot study. For example, it was recommended that in every item the safer sex method was stated clearly to be the use of condoms or dental dams with a sexual partner. It was also suggested that all the measures be consistent with the TACT; for example, all measures should include “in the next 6 months”.

Finally, Section 2 of the questionnaire included 20 items (shown in Table 3-2) which asked participants to use a 7-point Likert or a semantic differential scale to measure attitudes, subjective norms, perceived behavioural beliefs and intentions for safer sex. A lower level on the scale indicated a lower score.

Table 3-2: Items Measuring the Antecedents of Safer Sex Intentions used in the Pilot Study

Attitudes

Overall, I think that using safer sex method, such as a condom or dental dam every time I have sex with my partner in the next 6 months is:

Harmful	1	2	3	4	5	6	7	Beneficial
Unpleasant	1	2	3	4	5	6	7	Pleasant
Bad Practice	1	2	3	4	5	6	7	Good Practice
The wrong thing to do	1	2	3	4	5	6	7	The right thing to do
Ruining the heat of the moment	1	2	3	4	5	6	7	Not ruining the heat of the moment

Subjective Norms (Response Scale: Strongly Disagree/ Strongly Agree)

- People who are important to me think that I should use safer sex methods, such as a condom or dental dam, every time I have sex with my partner in the next 6 months.
- I feel that I am under social pressure from people who are important to me, to use safer sex methods, such as a condom or dental dam, every time I have sex with my partner in the next 6 months.
- It is expected of me from the people who are important to me, that I use safer sex methods, such as a condom or dental dam, every time I have sex with my partner in the next 6 months.

Perceived Behavioural Control (Response Scale Extremely unconfident/Extremely Confident)

- How confident do you feel in your ability to use a condom or dental dam with your partner even after you have been intoxicated by alcohol or drug in the next 6 months?
- The decision to use a safer sex method every time I have sex with my partner in the next 6 months is beyond my control (Response scale Strongly Disagree/ Strongly Agree).
- How confident are you that you could suggest using a condom or dental dam, every time you have sex with your partner, even if you were afraid that your partner would reject you in the next 6 months?
- How confident do you feel in your ability to put on a condom or dental dam, every time you have sex, without breaking the sexual mood with your partner in the next 6 months?
- How confident do you feel in your ability to buy condoms or dental dams, without feeling embarrassed to prepare for sex with your partner in the next 6 months?
- How confident do you feel in your ability to discuss using a condom or dental dam, with your partner every time before you will have sex in the next 6 months?
- How confident do you feel in your ability to use a condom or dental dam, correctly on yourself or your partner every time you will have sex in the next 6 months?

Table 3-2: Continued: Items Measuring the Antecedents of Safer Sex Intentions used in the Pilot Study

Safer Sex Intentions (Response Scale: Strongly Disagree/ Strongly Agree)
• I intend to use safer sex method, such as a condom or dental dam, every time I have sex with my partner in the next 6 months. • I intend to try persuading my partner to use safer sex method, such as a condom or dental dam, every time we have sex in the next 6 months. • I intend to keep safer sex method, such as a condom or dental dam, handy every time I have sex with my partner in the next 6 months. • I intend to use safer sex method, such as a condom or dental dam, every time I have sex with a new partner in the next 6 months. • I intend to stop and ask for the use of safer sex method, such as a condom or dental dam before having sex and even in the heat of the moment every time I have sex with my partner in the next 6 months.

3.3 **Pilot Study**

Researching sexual behaviour is a sensitive topic that is still considered taboo for many participants and carries a risk of a social stigma (Rawson & Liamputtong, 2010; Smerecnik et al., 2010). For these reasons, an anonymous online questionnaire, delivered via advanced Survey Monkey, was used in the pilot study. This enabled sensitive questions to be asked by providing a high level of privacy and legitimacy to the participants. Completing a questionnaire online offered a safe environment for participants in which concerns about social norms were minimised (Kiesler & Sproull, 1986). This method was also used in the main study because it increased the likelihood of recruiting participants and encouraged them to respond to the questions in an objective manner (Gibson & McAllister, 2009; Tourangeau & Smith, 1996). It was also a highly appropriate data collection technique as it was time and cost-saving (Couper, 2000; Sue & Ritter, 2012). Large amounts of data could also be collected within a short time frame (Couper, 2000; Lefever, Dal, & Matthíasdóttir, 2007). Participation in both the pilot and

the main study was completely anonymous and voluntary. Participants were not asked for their contact details, such as name, email, or phone number.

3.3.1 **Pilot Study Participants and Sampling**

The selection criteria for young people to participate in the pilot study were that participants should be aged 18–24 years, live in and have had their high school studies in South Australia, regardless of their sexual status and sexual identity.

Following the suggestions of Browne (1995) about determining the required minimum sample size, a minimum sample of 30 participants per each tested factor was needed to conduct a pilot study. Therefore, one hundred and twenty participants were required, with 30 participants per each of the four tested factors. The researcher, however, acknowledges that a wrong sample size calculation occurred, and the recruitment process was ceased before the required sample size was achieved. Hence, one limitation of the pilot study was that the sample size was too small (n=84).

It was irrelevant whether the participants were sexually active or not at the time of participation, as the survey captured attitudes and practices from across this spectrum. This study excluded international students because they had not experienced SA high school education.

Participants were recruited over a one-month period between April and May 2017 through posting flyers within the Flinders University, South Australia, campus. Over one hundred flyers were posted on pin-up boards and the backs of toilet doors within Flinders University. Flyers included a description of the study, the selection criteria, an online link to the survey, a barcode, and a Facebook page address (@LetsTalkSaferSex) (refer to Appendix 9.1). The online link was also posted on the study Facebook page (@LetsTalkSaferSex). The flyers

informed potential participants that they would be asked about their sexual life, safer sex attitudes, perceived behavioural control, subjective norms, and substance use.

To access the survey, participants were required to either type the link into their browser (phone or tablet), scan the barcode (using a barcode scanner on their phone), or click on the link posted on the study Facebook page. Upon accessing the link, participants were required to read the study information sheet. It was recommended that they download it and save a copy on their tablet or computer. After reading the information sheet, participants had to click on the "NEXT" button. They were then able to access an informed consent form which outlined that they should read the information sheet and that the anonymity and confidentiality of their responses were protected in this study. After completing the consent form, participants were required to press the "NEXT" button and complete the online survey (see Appendix 9.2).

The questionnaire was set up so that participants did not have the option to skip any question. In Section Two of the pilot questionnaire, participants were asked to write comments about the questionnaire, clarify the questions and any suggestions. Participants were asked, "Could you please tell us about the clarity of the questions? Was it hard to complete? Any suggestions?" These questions were added so participants could provide general feedback for the pilot study. The feedback was required to improve the main study questionnaire and to highlight the pilot study limitations and if any errors were present. Once participants finished answering all the questions, a "thank you for completing the questionnaire" statement appeared in large font at the end of the questionnaire. Participants had to press "DONE" when they had finished. All responses, whether complete or not, were automatically saved on Survey Monkey. The participants did not receive any compensation for their participation in the study. The

participants were notified at the beginning about how long the survey might take to complete. The participants spent an average of 30 minutes in completing the questionnaire.

3.3.2 **Ethical Considerations**

Ethics approval for the study was provided by the Flinders University Social and Behavioural Research Ethics Committee (Project Number 7549) before conducting the research project. This project was funded by the College of Education, Psychology, and Social Work (EPSW) at Flinders University. During this project, the Australian National Ethical Code of Conduct (National Health and Medical Research Council [NHMRC], 2018) was used to guide this research, especially given the topic's sensitivity. Respect for the anonymity and privacy of the participants was considered. Participants were asked to sign an online consent form and were not asked about their contact details or names. The research data were saved in a secure password-enabled computer file at Flinders University. The data will be stored and deleted after five years. The research team, including the primary researcher and supervisors, was able to access it.

Online consent was gained from all the participants prior to commencing the pilot and the main study questionnaires. Participants were asked to complete an online checklist consent form before initiating the questionnaire. The checklist included seven statements (see Table 3-3), and it was required that participants ticked all the checklist statements.

As suggested by the Australian National Statement on Ethical Conduct with Human Participants (Section 5.2.17) (National Health and Medical Research Council, 2007 - Updated 2018), an information sheet was presented to potential participants to “help them to make good choices about their participation and support them in that participation” (p. 90). Participants could download and save the information sheet on electronic devices.

Table 3-3: Online Consent form Used in the Pilot and Main Study

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You are invited to take a part in this voluntary and anonymous research survey about "Let's Talk About Safer Sex". Taking part in this study is completely voluntary.

Please complete the consent form below then start the online questionnaire by clicking the NEXT button below.

Declaration by the participants:

- I have read the participants' 'Information Sheet' or someone has read to me in a language that I understand;
- I am aware that I can download a copy of the "Information Sheet" and this "Consent form";
- I understand the purpose and risks of the research described in this project;
- I understand that my responses will be kept strictly confidential, and digital data will be stored in secure computer files;
- I understand that I may not directly benefit from taking part in this project;
- I freely agree to participate in this research study as described and understand that I am free to withdraw at any time during the project and withdrawal will not affect my relationship with any of the named organizations and/or research team members;
- I provide my consent for the information collected about me to be used for the purpose of this research study only.

Study participants were offered support from health services and counselling telephone numbers to request free counselling if they felt distressed during or after participating in the pilot or the main study. To ensure the participant's safety and mental well-being, at the beginning of each section of the pilot questionnaire, the researcher provided participants with the following recommendation:

> "If you experience any distress during or after participating in this survey, you can access support by calling Lifeline Adelaide 24/7 on 13 11 14 or Flinders counselling service on 082012118."

The study was structured to provide an inclusive and respectful approach to South Australian young people's sexual identities. Young people, regardless of their sexual identities,

were invited to take part in this study. A rainbow was also added to the distributed flyers, the heading of the online questionnaire and the study Facebook profile page (see Figure 3-1) to encourage young people from diverse sexual identities to feel welcomed to participate in this study.

Figure 3-1: Heading of the Pilot study Flyer and Online Survey

3.3.3 **Pilot Results**

Of the 106 participants who initiated the questionnaire, only 84 (79.2 %) completed Section One, which asked demographic and background questions and whether participants met the selection criteria (live in SA, aged between 18–24 years and completed their high school education in SA). Most of the participants were from Flinders University. More than half (61.7%, n= 50) of the surveyed participants completed both sections of the pilot questionnaire. As noted previously, participant's responses were recorded and saved even if they did not complete the whole questionnaire.

The thirteen participants who did not complete the demographic questions (Section One) and nine participants who did not meet the selection criteria were excluded from the pilot study.

Table 3-4 shows that more than half (51.2%, n = 43) of the pilot participants were 18 years old, identified as heterosexual females (59.5%, n= 50), and had one sexual partner in the

last 3 months (58.3%, n = 49). Most pilot participants were presented as sexually active young people (72.6%, n= 61), while the remaining respondents (27.4%, n= 23) were sexually inactive. Table 3-4 also revealed that most of the participants were Caucasian/Anglo-Saxon (90.5%), and more than half of the participants had no religious affiliation (59.5%). Most of the respondents were born in Australia (90.5 %), while the remaining (9.5%) were born overseas.

Table 3-4*:* Demographic Characteristics of Young People in the Pilot Study

Characteristics	**Frequency (n)**	**Percent (%)**
Age		
18	43	51.2
19	20	23.8
20-24	21	25.0
Sexual Identity		
Heterosexual Female	50	59.5
Bisexual Females	23	27.4
Others (Homosexual and Bisexual Males*)	11	13.1
Number of Sexual partners		
1 Partner	49	58.3
2 Partners or more	19	22.7
None	16	19.0
Relationship Status		
Monogamous relationship for 3 months or more	39	46.4
Monogamous relationship for less than 3 months	13	15.5
Dating and non-monogamous relationships	11	13.1
Not in any intimate relationship	21	25.0
Race/Ethnicity		
Caucasian/ Anglo-Saxon	76	90.5
Others (Indian, Asian, Latino, Indigenous Australian, African)	8	9.5
Religion		
Religious Affiliation	34	40.5
Non-religious Affiliation	50	59.5
Total	**84**	**100**

**In this pilot study, all the people who identified as males were either bisexual or homosexual.*

3.3.4 **Analysis of Pilot Data**

The collected data were cleaned for errors to draw a meaningful response, such as some participants who mentioned that they were sexually inactive but indicated that they engaged in a safer sexual activity with a partner with other questions. Thus, their response was updated by considering them as sexually active. Francis et al. (2004) recommended using a "compute" command to create composite variables for each test factor, namely attitudes, subjective norms, and perceived behavioural control and to conduct item analysis to test internal consistency. The high scores for each factor reflected stronger attitudes, subjective norms, perceived behavioural control, and intention to perform the targeted behaviour, such as safer sex use.

Missing data were major issues in the pilot study; they accounted for 20.7% for Section One and 52.8 % for Section Two. The missing data were not random but occurred because participants lost motivation to complete the lengthy questionnaire (Myers, 2011). Due to the major missing data, the decision was made not to use listwise deletion (Rubin, 1976) to handle the missing responses to avoid large data loss. When using this technique, Chen and Åstebro (2003) noted that the sample size power would decrease, and the bias in parameter estimates would be present. The data from the TPB constructs were analysed by using Mplus version 8.5, which allowed Full Maximum Likelihood (FML) estimation for missing data and made it easy to deal with non-normally distributed data (Muthén & Muthén, 2010).

Descriptive statistical analysis, mainly calculating frequency and percentage, was used to analyse the demographic and background data collected from Section One. Due to the small sample size (N=84), it was impossible to run an Exploratory Factor Analysis (EFA) for Section 2 of the questionnaire by using the Statistical Package for the Social Sciences (SPSS) version 25. Instead, Confirmatory Factor Analysis (CFA) was applied by using Mplus. A minimum of 10

participants per tested item was needed to permit a one-factor Confirmatory Factor Analysis (CFA) (Browne, 1995). This small sample size can be used to test the reliability and validity of one factor at a time (Tabachnick & Fidell, 2013).

3.3.4.1 Confirmatory Factor Analysis (CFA) of Pilot Constructs

Reviewing studies (Albarracín et al., 2000; Ajzen et al., 1996) that applied Theory of Planned Behaviour showed that Confirmatory Factor Analysis (CFA) and Structural Equation Modelling (SEM) were the most suitable statistical techniques for this type of study.

Confirmatory Factor Analysis (CFA) was used to test the proposed intention to safer sex model. CFA deals with associations between the observed variables (as indicators) and the latent variables or factors (Brown, 2015). CFA is one of the most commonly used statistical procedures in applied research (Brown, 2015). The advantages of using SEM when testing the associations between variables is that:

> the relations are theoretically free of measurement error because the error has been estimated and removed, leaving only common variance. Reliability of measurement can be accounted for explicitly within the analysis by estimating and removing the measurement error (Ullman, 2006, p. 38).

Because 120 participants were needed for a full CFA of the four tested factors, namely, intentions, attitudes, subjective norms, and perceived behavioural control, the small pilot sample size, therefore, prevented a full CFA of all constructs together. This small sample size prevented the determination of the convergent and discriminant validity of all the constructs (Brown, 2015).

An essential measure to assess the model fit for each of the one-factor constructs was by considering the SEM fit indices. These SEM fit indices included the following. The chi-square (χ^2) statistical test was used to test if the proposed model fitted the actual collected data.

Specifically, chi-square was used to test the 'absolute fit' of the model and the data. The chi-square analysis tests if there is a discrepancy between the covariances predicted by the model and the population covariances. Chi-square, therefore, allows for 'exact-fit hypothesis' as described by Kline (2016). A non-significant chi-square indicates that the proposed model fits the observed data (Hox & Bechger, 1998). However, chi-square is very sensitive to sample size, and alternative fit indices are needed to assess model fit (Hox & Bechger, 1998).

Several goodness-of-fit indices have been proposed by researchers (Brown, 2015; Hox & Bechger, 1998; Kline, 2016). These proposed alternative goodness-of-fit indices are the Goodness-of-Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI), Normalised Fit Index (NFI), Comparative Fit Index (CFI), Root Mean Square Residual (RMSR), and Root Mean Square Root of Approximation (RMSRA). However, Brown (2015) suggested that four fit indices, namely Comparative Fit Index (CFI), the Tucker-Lewis Index (TLI), the Standardized Root Mean Square Residual (SRMR) index, and the Root Mean Square Error of Approximation (RMSEA) index, were good indicators for model fit. Brown (2015) suggested the cut off of these fit indices should be SRMR values close to 0.08 or below; RMSEA values 0.06 or below; and CFI and TLI values close to 0.95 or greater.

Kline (2016) supported using these fit indices; however, he suggested a consideration of the 'close-fit hypothesis' and the 'poor-fit-hypothesis' related to a RMSEA 90% confidence interval (RMSEA 90 CI.). The lower limit value for the 'close-fit hypothesis' not to be rejected should be less than or equal to 0.05, while the upper limit value for the 'poor-fit hypothesis' not to be rejected should be greater than or equal to 0.1. Therefore, chi-square test, RMSEA, RMSEA 90 CI. CFI, TLI, and SRMR were used to test the model fit of the indicators for each predictor.

An analysis of items was used to assess each predictor as a one-factor congeneric model separately. The items for each factor were presented as a shortened version for a more accessible display when CFA is graphically presented. The chi-square test was examined, as were goodness-of-fit indices; modification index and models were re-specified until a well-fitting model was found. The model re-specification was based on trimming items from the model if the level of correlation between two items was high or resulted in a high change in chi-square, items with high residual, and/or low R-square. The model trimming process yields to satisfying fit indices and a better model fit (Reuter, Huppe, Netter, & Hennig, 2003).

Score reliability was also computed for each of the TPB constructs using Hancock and Mueller's (2001) 'coefficient H'. This coefficient was preferred over Cronbach's alpha because it is considered a better measure of reliability (Brunner & Heinz-Martin, 2005). 'H' recognises that not all indicators of the factor are contributing equally (Brunner & Heinz-Martin, 2005). Like Cronbach's alpha, coefficient H value should be above 0.70 for the factor to be reliable (Hancock & Cudeck, 2001).

3.3.5 **Results and Discussion: Pilot Study**

3.3.5.1 Participants' Responses on the Clarity of the Pilot Questionnaire

Only 52 participants provided written feedback about the clarity of the questionnaire and the time spent to complete it. Participants' responses regarding the language used varied between "clear", "confusing" and "needed to be reworded". One of the responses stated that "there were a lot of questions that were very similar, and few questions could have been worded better." Respondents also noted that there were many questions. One respondent stated: "a lot of the questions were very similar, so it got mildly confusing and had to re-read questions". Other respondents made comments similar to: "clearing up how the questions were worded, and how

some questions are pretty much the same could be cleared up". This feedback was applied to the perceived behavioural control items. Reviewing the perceived control items showed that the items were worded in a similar way, which led participants to consider that some questions were repeated. As a result, the perceived behavioural control items were reworded and shortened (see later Table 3-6).

The length of the questionnaire was a concern for some participants. The length of the questionnaire led indirectly to participants losing motivation to complete it. It has been noted that respondents stated that they "lost concentration", and "began to skip and just assume my [their] answers". This concern was addressed by mixing together the items of all the indicators. In other words, items for all the TPB constructs were listed randomly without an order. Also, in the main study, the researcher asked a few important demographic questions at the beginning of the questionnaire followed by the psychological measure questions and concluded with the remainder of the demographic questions. The researcher made this change to ensure that the participants did not lose motivation to complete the questionnaire.

The participants also criticised the use of a 7-point Likert scale. It was noted that "For most of the time, I [participant] was not sure which answer to tick." Furthermore, in their study, Adelson and McCoach (2010) compared how students responded to a mathematics attitudes instrument with a 4-point Likert scale compared with a 5-point Likert scale with a neutral point. The study showed that the reliability of the 5-point Likert scale was statistically and significantly higher than that of the 4-point Likert scale. Thus, using a neutral mid-point was recommended. As a result, a decision was made to use a shorter 5-point Likert response scale in the main study.

Providing explicit safer sex and safer sex methods definitions was one of the suggestions that the pilot study participants noted. Specifically, one participant commented that a "better

definition of safer sex methods would be good". Hence, in the main study, safer sex was defined as the use of condoms or dental dams every time a person engaged in a sexual encounter. Safer sex methods were defined as the use of condoms or dental dams. Based on the provided feedback, it was clear that the questionnaire needed to be reworded carefully, and items needed to be shortened before considering them for inclusion in the main study.

3.3.5.2 Confirmatory Factor Analysis of Pilot Data

3.3.5.2.1 Safer Sex Perceived Behavioural Control

All seven indicators that were designed to reflect the latent variable of safer sex perceived behavioural control were entered into the one-factor model in Mplus. The first analysis revealed that the model had very bad fit indices (χ^2 (14) = 41.77, p=0.0001, RMSEA =0.154, CFI = 0.949, TLI = 0.924, SRMR =0.035). These results indicated that the model should be rejected. Thus, to improve this model, items with non-significant loading, high residual or a low R-squared value were dropped one at a time (Kline, 2016). Firstly, the perceived behavioural control item "How confident do you feel in your ability to discuss using a condom or dental dam, with your partner every time before you will have sex in the next 6 months?" had a very high standardised coefficient (0.951). Dropping this item improved the model slightly but the model's fit indices were still poor (χ^2 (9) = 22.03, p=0.009, RMSEA =0.131, CFI = 0.968, TLI = 0.947, SRMR =0.031) and not satisfactory. Removing the item "How confident do you feel in your ability to use a condom or dental dam, correctly on yourself or your partner every time you will have sex in the next 6 months?" with a high correlation (0.90) with another item "How confident do you feel in your ability to put on a condom or dental dam, every time you have sex, without breaking the sexual mood with your partner in the next 6 months?", resulted in a model which passed the

chi-square test and had good fit indices (χ^2 (5) = 4.02, *p*=0.547, RMSEA =0.000; RMSEA 90 CI. = 0.000 - 0.136; Probability RMSEA <= 0.05 = 0.655; CFI = 1; TLI = 1; SRMR = 0.022).

As Figure 3-2 illustrates, the perceived behavioural control model included five indicators with good fit indices. The Coefficient H value was 0.92, suggesting that measurement of this factor was considered reliable. The 5 items of the perceived behavioural control factor were shortened for easier display on the models (See Figures 3-2).

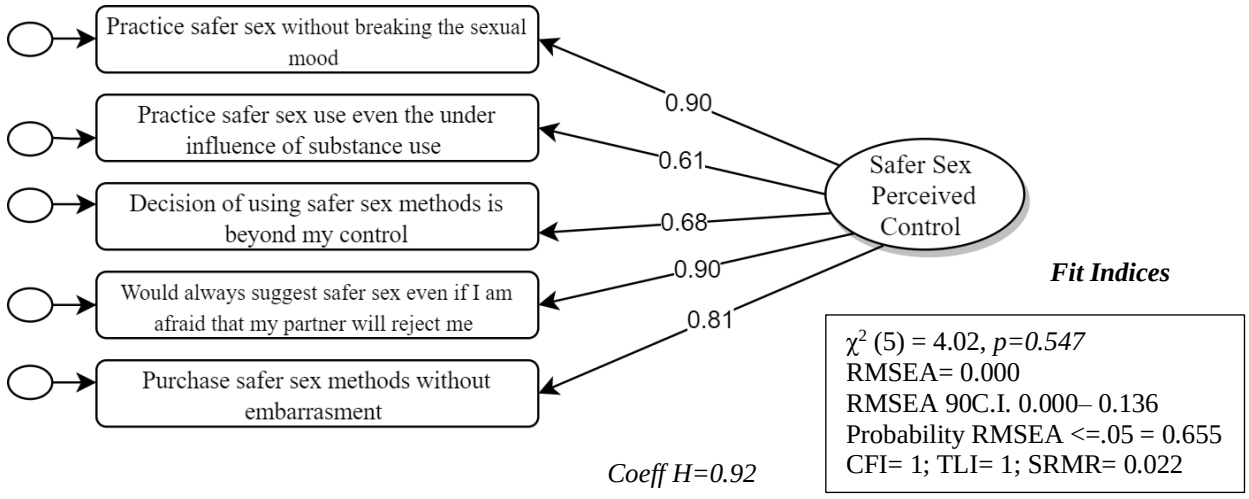


Figure 3-2: Pilot Congeneric Factor: Safer Sex Perceived Behavioural Control

The two items that were dropped were examined closely. These items were about discussing and correctly using safer sex methods. It was noted that these two items were long and worded in a similar way. Thus, a decision was made to re-word and shorten all the perceived behavioural items which the study participants had highlighted. For example, “How confident do you feel in your ability to discuss using a condom or dental dam with your partner every time before you will have sex in the next 6 months?” was reworded and shortened to “I am confident to discuss condom or dental dam use, with my partner before having a sexual activity”. Another item, “How confident do you feel in your ability to use a condom or dental dam correctly on

yourself or your partner every time you will have sex in the next 6 months?" was changed to "I am confident to use a condom or dental dam, correctly on myself or my partner every time". Subsequently, all PBC items were reworded and shortened (see later Table 3-6).

3.3.5.2.2 Safer Sex Attitudes

One factor congeneric analysis of the safer sex attitude items was conducted. Using Mplus, all five indicators were entered into the one-factor model. However, the model revealed poor fit indices (χ^2 (5) = 15.38, p=0.009, RMSEA =0.157, CFI = 0.966, TLI = 0.932, SRMR =0.061), suggesting the model should be rejected. To improve the model, attitude item "Overall, I think that using safer sex method, such as a condom or dental dam every time I have sex with my partner in the next 6 months is: Bad /Good practice) was dropped due to a high standardised coefficient (1.001). Dropping this item improved the model, but RMSEA (=0.086) and SRMR (=0.037) were still unsatisfactory. Removing item "Harmful/Beneficial", which had a low and non-significant R-square value (0.19), resulted in a non-positive definite model. This indicated that these items did not reflect safer sex attitudes in a satisfactory manner. As a result, these items could not be used in the main study. The model was rejected and new items were sought.

3.3.5.2.3 Safer Sex Subjective Norms

It was impossible to analyse the one-factor congeneric model for the safer sex subjective norms antecedent because the subjective norm construct consisted of three items instead of a minimum of four indicators. Francis et al.'s (2004) recommendation that subjective norms could be measured by developing three items could not be tested. More items were required to measure subjective norms in the main study, especially since confirmatory factor analysis (CFA) was to be undertaken.

3.3.5.2.4 Safer Sex Intention

Using Mplus, Confirmatory Factor Analysis (CFA) of the safer sex intention items was undertaken. All five indicators were entered into the one-factor model. The model revealed that RMSEA (=0.072) was not satisfactory, although the model passed the chi-square test (χ^2 (5) = 7.17, p=0.21) and other fit indices (CFI = 0.996, TLI = 0.991, SRMR =0.014) were satisfactory. To improve the model, the intention item "I intend to use a safer sex method, such as a condom or dental dam, every time I have sex with my partner in the next 6 months", which had a high standardised coefficient (0.97), was dropped. The results revealed that the model now passed the chi-square test and had good fit indices suggesting a good model fit (χ^2 (2) = 1.20, p=0.550, RMSEA =0.000; RMSEA 90 CI. = 0.000 - 0.186; Probability RMSEA <= 0.05 = 0.614; CFI = 1; TLI = 1; SRMR = 0.008). As with the perceived behavioural model results, an upper RMSEA limit (>0.1) suggests a 'poor fit' and a lower RMSEA (<0.05) suggests a 'close fit' model. Following the Kline (2016) recommendations, this can be attributed to a sampling error due to the presence of a small sample size. The Coefficient H value was 0.96, suggesting that the measure for this construct was considered reliable (Figure 3-3).

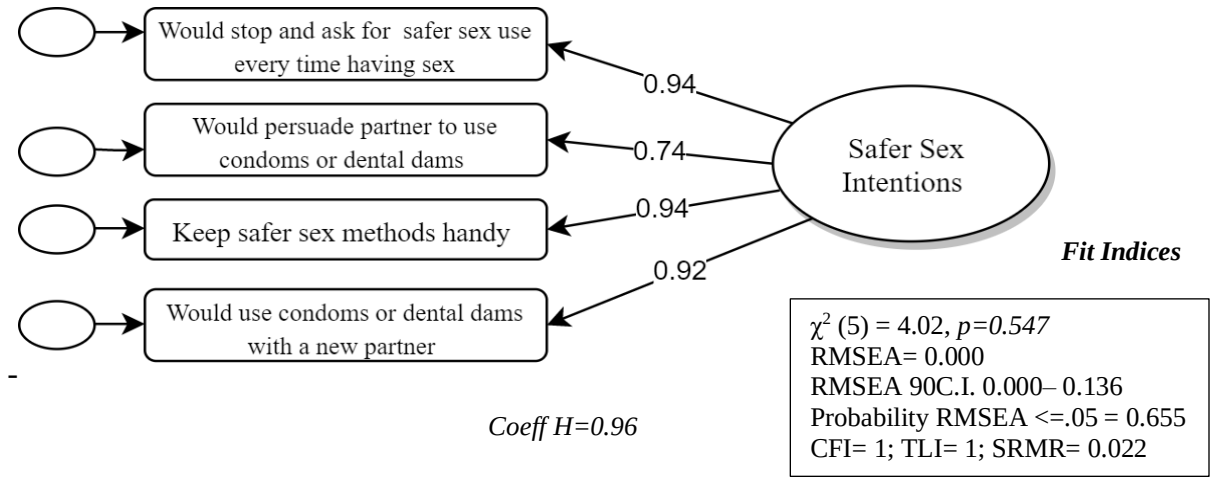


Figure 3-3: Congeneric Factor: Safer Sex Intentions.

As discussed in Section 3.3.4.1, small sample size can influence the precision of the CFA model parameter estimates and could potentially produce unstable correlation estimates. As a result, a decision was made to shorten and reword all the intention items, including the dropped ones.

While fit indices were satisfactory, the analysis in Mplus indicated that the matrices involved in the study were non-positive definite. This meant that the input variance-covariance matrix and the model-implied covariance-variance matrix were non-positive definite and could not be accepted. The non-positive definite matrix could be attributed to the use of a small sample. According to Brown (2015), the non-positive definite matrix is due to the presence of a sample prone to outliers and could lead to collinearities and non-normally distributed data. This meant that the constructs as devised had to be changed if multicollinearity was to be avoided in the main study.

One factor analysis indicated that there were sufficient items to support only the perceived behavioural control factor and intention. The perceived behavioural control factor and the Safer Sex intention factor met the criteria for conducting satisfactory factor analysis (Hair, Black, Babin, Anderson, & Tatham, 1998). Factor analysis performed on the PBC and intentions questions showed that these items had a strong internal consistency and reliability. These results suggested that safer sex PBC and intention could be used in the main study but that the measurement for attitudes indicators needed to be changed.

A focus of the pilot study was to test the convergent validity and reliability of the self-developed questionnaire based on the TPB model. The results of factor analysis for the TPB construct items implied that the data were not appropriate for running a factor analysis, especially for measuring attitudes and subjective norms, due to the presence of multicollinearity between the items (Lorenzo-Seva & Ferrando, 2006) and the presence of fewer than four items in these constructs. According to Kennedy (2003), high correlations between items indicate a slight variation between variables, which means that there is not much information that can be used to estimate coefficients for each factor. Thus, the pilot results were not found satisfactory to answer the main study research questions. Therefore, revising the questionnaire items was seen as being an essential step prior to conducting the main study. It is worth noting that the pilot study results were used only to guide conducting the primary research and were not included in the final research discussion.

3.3.5.1 Revising Questionnaire Items

The pilot study highlighted several concerns regarding the questionnaire, including the clarity of the questions, the order of the questions, TPB items, and the response options available

for the participants, particularly in relation to the questions that explored the demographic details. This sub-section discusses in detail the process of revising the questionnaire items before conducting the main study.

Demographic questions

Generally, most of the pilot study's demographic and sexual health questions were considered satisfactory and could be added to the main research. However, based on the participants' comments, some demographic and sexual health questions required rewording and/or necessitated a different response format. For example, instead of asking participants about their sexual *identity*, it was deemed better to ask participants about their sexual *orientation*. Revising this question prevented participants from selecting multiple answers and made their sexual preference clearer.

A "please specify" option was added to the sexual status question because participants could be sexually inactive but could be engaging in other forms of sexual activity such as masturbation. For this reason, participants were given the option of providing a written response about their sexual status.

Based on the pilot study, and to prevent a high drop-out rate, it was essential to maintain participants' motivation to complete the questionnaire in the main study. From the literature, Gideon (2012) had suggested that, depending on the information required from the questionnaire, demographic items must be presented either at the beginning or the end of the questionnaire and should not be presented in the middle. Gideon (2012) also recommended that a logical flow of questions should always be maintained. Similarly, Herzog and Bachman (1981) suggested that the questionnaire should include different sections to increase participants' motivation to complete it. For this reason, demographic questions were split into two sections so

that the essential main demographic questions from Section One were answered early on because, in order to answer the study research question, the first section of demographic and sexual health questions was needed, and these were followed by Section Two that consisted of the psychological factors (TPB antecedents) items.

The first section of the questionnaire included demographic and sexual health questions related to the participant's age, sexual status, and the number of partners. Participants were also asked about their religious affiliation, cultural background, sex education, and safer sex behaviour, such as use of condoms and dental dams.

Section One also included three items from Lally et al.'s (2014) "Sexual Health and Awareness Instrument" and one self-developed item about the frequency of safer sex use (see Table 3-5). After piloting these items on 84 participants in the early phase of the study, it was decided to use them in the main study. These items assisted in understanding the participants' safer sex behaviour. Participants were asked to select the option that best reflected their response regarding safer sex use, for example, "If you ever had sex with a condom or dental dam please give some reasons (all that apply): Chief method of contraception/ Backup method of contraception/ Prevent transmission of STIs/ Never/ Not applicable/ Other (please specify)".

Table 3-5: Sexual Health Questions Used in Section One of the Main Study

1-	Which types of contraception have you used within the last 6 months? Condoms/ Oral contraceptive pill/ IUD/ Natural family planning/ Withdrawal method/ implanted contraceptive/ Dental Dam/ None/ Not applicable/ Other (**Please Specify**)
2-	If you ever had sex without a condom or dental dam, please give some reasons (tick all that apply): We used other forms of contraception (e.g. pill)/ We got carried away in the heat of the moment/We did not have access to condoms/ We were of the same gender so there was no pregnancy risk/ We are trying to get pregnant/ Due to alcohol or drug consumption condoms were ignored/ **Stealthing/ It was rape**/Not Applicable/ Other (please specify)
3-	If you ever had sex with a condom or dental dam please give some reasons **(all that apply**): Chief method of contraception/ Backup method of contraception/ Prevent transmission of STIs/ Never/ Not applicable/ Other (please specify)
4-	In the last 6 months, how often did you use safer sex methods such as condom or dental dam? **Always used / Most of the times used/ Sometimes used/ Rarely used/ Never used/ Not applicable (if sexually inactive) ***

*Note: *: Self-developed item. **Bold Words** indicate reviewed item based on pilot study.*

These questions were followed by Section Two, which included selected items from the "Sexual Risk Scale" (SRS) (discussed below) (DeHart & Birkimer, 1997) and perceived behavioural control items from the pilot study. At the end of Section Two, participants were asked about parent–teenage communication, substance use, fortnightly income, living style (as in living with their parents or not) and education level.

The pilot study had revealed issues related to the scale range used, which was a 7-point Likert scale. The loss of motivation to complete the questionnaire was not unexpected as previous studies (Herzog & Bachman, 1981; Prescott & Soeken, 1989) had highlighted this issue when using a lengthy questionnaire and a large measuring scale. With concern about the high dropout rate, the researcher considered re-ordering the questions, shortening the questionnaire and questions, and using a shorter Likert scale in the main study, as recommended by Herzog and Bachman (1981). Thus, a decision was made to use a 5-point Likert scale in the main study.

The parent/carer–teenage communication response scale was also revised. The updated response scale included: “All the Times”, “Few Times”, “Once or Twice” instead of the “Most of the Times”, “About half the times”, and “Sometimes”. All the revised items were presented in bold font (more details presented in Tables 4-1 and 4-2 of Chapter 4 Section 4.1).

Based on the information from the pilot study regarding the TPB constructs items, the researcher was not confident that the items in the pilot questionnaire would fit together well. Furthermore, it was troubling that it was only possible to run CFA on safer sex perceived behavioural control and safer sex intentions. Therefore, the researcher decided to go back to the drawing board, re-read the literature, and re-consider what was needed for this stage. As a result, a validated and reliable instrument titled “Sexual Risk Scale” (SRS) by DeHart & Birkimer (1997) was considered as a viable alternative to some of the TPB questions created in the pilot study. The SRS instrument was utilised in this study because the SRS items were short, brief, precise, and written in an easy-to-read way, which indirectly maximised the response rate following what Dillman, Smyth, and Christian (2014) had suggested would happen. More importantly, Zamboni, Crawford, and Williams (2000), Sumnall, Beynon, Conchie, Riley, and Cole (2007) and Walcott, Chenneville, and Tarquini (2011) had used this reliable instrument to understand young people’s sexual behaviour and had also found it reliable. Due to its adequate psychometric properties, Zamboni, Crawford, and Williams (2000) used the DeHart and Birkimer (1997) instrument to explore the relationship between communication and assertiveness to predict condom use among college students. Zamboni, Crawford, and Williams (2000) found that the condom attitude scale was a significant moderator of the relationship between sexual assertiveness and condom use.

Similarly, in their study examining the relationship between sex education and college students' sexual attitudes and behaviour, Walcott, Chenneville, and Tarquini (2011) used the 38 items of the SRS instrument. DeHart and Birkimer's (1997) instrument assessed sexual attitudes among undergraduate students. The reliability analysis showed that the subscales scores of SRS had adequate internal consistency.

The SRS instrument comprised six measuring scales: attitudes, subjective norms, intentions, expectations, susceptibility, and substance use. DeHart and Birkimer (1997) constructed the SRS instrument based on TPB, Theory of Trying and Health Model Beliefs (HMB). First, DeHart and Birkimer (1997) conducted a preliminary study where students were asked open-ended questions about their beliefs and opinions regarding safer sexual activity. Students were invited to write paragraphs expressing why they did practise safer sex and about their safer sexual behaviour. As a result, DeHart and Birkimer (1997) derived the 108 items of the questionnaire from author-generated statements, statements from the literature, and student-generated statements. DeHart and Birkimer (1997) stated that the selected items were

> modified in accord with criteria utilized by Brown (1984), Edwards (1957), and Wang (1932): (a) half the items were worded positively, and half were worded negatively; (b) items were brief, and technical jargon was avoided; (c) attitude items were affectively oriented and debatable; (d) universals (e.g. all, never) and double negatives were avoided; (e) items were likely to be endorsed by almost everyone or almost none were not used. We [DeHart and Birkimer] also tried to assure that items did not contain phrases that indicated participants were/are sexually active (p. 14).

The process of validating the Sexual Risk Scale instrument carried out by DeHart and Birkimer (1997) included running two studies. Study 1 was called the criterion testing and item elimination phase, which included running Principal Components factor Analysis (PCA) on a sample of 296 undergraduate students. This study resulted in retaining 40 items out of the 108 items in the original questionnaire. The second study intended to verify the appropriateness of

the 40 items retained in Study 1 for a final scale measuring theoretical constructs related to safer sex behaviour. The retained items were piloted on a sample of 200 participants. The researchers used Principal Components Analysis (PCA) to examine whether the factor structure obtained in Study 1 was maintained across the sample. Structural Equation Modeling (SEM) was also conducted to examine the construct and predictive validity of the subscales. The subscale's internal reliability was also tested. Overall, the final scale included 38 items with Cronbach's alpha equal to 0.86. The final scale contained six subscales that possessed internal reliability (ranging from 0.76 to 0.84) and predictive and construct validity. Therefore, this instrument had evidence of internal reliability and both construct and predictive validity.

DeHart and Birkimer (1997) noted that the six subscales "may be used individually or in conjunction with one another, depending upon the needs of particular researchers" (p. 11). This suggested that the SRS instrument was a reliable and valid instrument worthy for use in this study to examine safer sex intentions. However, the SRS questionnaire did not include items to test PBC. As a result, PBC items from the pilot study were added to the SRS instrument.

As shown in Table 3-6, the pilot PBC items were shortened and re-worded to make them easier for participants to answer. For example, the PBC item "How confident do you feel in your ability to buy condoms or dental dams, without feeling embarrassed to prepare for sex with your partner in the next 6 months?" was shortened to "I am confident to put on a condom or dental dam without breaking the sexual mood".

Table 3-6: Safer Sex Perceived Behavioural Control items in the Pilot and Main Studies

Pilot Items	*Items for Main Study*
How confident do you feel in your ability to use a condom or dental dam with your partner even after you have been intoxicated by alcohol or drug in the next 6 months?	**I am confident to use safer sex methods with my partner even under the influence of substance use.**
The decision to use a safer sex method every time I have sex with my partner in the next 6 months is beyond my control.	**The decision to use a safer sex method is beyond my control.**
How confident are you that you could suggest using a condom or dental dam, every time you have sex with your partner, even if you were afraid that your partner would reject you in the next 6 months?	**I am confident to suggest using a condom or dental dam with my partner, even if I am afraid that my partner would reject it.**
How confident do you feel in your ability to put on a condom or dental dam, every time you have sex, without breaking the sexual mood with your partner in the next 6 months?	**I am confident put on a condom or dental dam without breaking the sexual mood.**
How confident do you feel in your ability to buy condoms or dental dams, without feeling embarrassed to prepare for sex with your partner in the next 6 months?	**I am confident to buy condoms or dental dams, without feeling embarrassed.**
How confident do you feel in your ability to discuss using a condom or dental dam, with your partner every time before you will have sex in the next 6 months?	**I am confident to discuss condom or dental dam use, with my partner before having sexual activity.**
How confident do you feel in your ability to use a condom or dental dam, correctly on yourself or your partner every time you will have sex in the next 6 months?	**I am confident to use a condom or dental dam, correctly on myself or my partner every time.**

The next chapter describes the main study method, specifically, the main study instrument ("Sexual Risk Scale", SRS), the recruitment procedure, data collection and data analysis.

4- METHODS: MAIN STUDY

Similar to the pilot study, the main research study was also structured to provide an inclusive and respectful approach to South Australian young people's sexual identities. Thus, a rainbow symbol was once again used in the heading of the online survey and flyer to encourage all South Australian young people to take part in the main study regardless of their sexual identity (Figure 4-1).

Figure 4-1: Heading of the main study Flyer and Online Survey

4.1 Main Study Instrument

The main study questionnaire entitled "Let's Talk About Safer Sex" was divided into three sections: 'demographic, and sexual health part I', 'psychological', and 'demographic and sexual health part II'. The questionnaire included the demographic questions (29 items) from the pilot study related to age, gender, and fortnightly income, and questions about participants' sexual activity status, sex education, safer sex practices, and parent/carer–teenage communication questions (see Table 4-1). The questionnaire also included seven items assessing perceived behavioural control derived from the pilot study and 32 items adapted from the "Sexual Risk Scale" (SRS) (DeHart & Birkimer, 1997).

Section One: Demographic and Sexual Health Questions

The first section of the online questionnaire included 15 multiple-choice or short-answer questions divided into demographic (see Table 4-1) and sexual health questions (see Table 4-2). Age and where high school education had been undertaken in South Australia were essential criteria and were asked at the beginning of the questionnaire as part of the demographic questions. If a participant selected their age as “less than 18” or “greater than 24”, or they did not complete their high school education in SA, they were excluded from the study and a “Thank you for participating message” automatically appeared. Participants who matched the selection criteria were able to access the whole questionnaire, including all three sections.

Section One of the main questionnaire asked participants about their demographic characteristics, such as age, sexual orientation, religion, and cultural background (see Table 4-1). The demographic items were derived from the pilot study. Only the sexual orientation item was modified for the main study. In the pilot study, participants had been asked about their sexual identity/sexual orientation, and a range of sexual orientations and identities were listed. As a result, young people were confused about whether to report their sexual identity or their sexual orientation. Thus, in the main study, sexual orientation was used with six categories provided (heterosexual male, heterosexual female, homosexual male, lesbian, bisexual male, and bisexual female), and participants were asked to select one response only. Moreover, the option “prefer not to say” was added if young people did not want to share their sexual orientation. Also, an “other (please describe)” response was added if the participants did not fit any of the listed options but identified as another category, such as queer, or still questioning their sexual identity.

Table 4-1: Demographic Items Used in Section One of the Main Study

Main Instrument Used	*Modified Items From Pilot Study*
1- How old are you? Drop List: >18, 18, 19, 20, 21, 22, 23, 24, >24. If >18 or <24 is selected, participants will exit the survey. (Thank you for participating). OTHERWISE 2- Have you completed your high school education (Years 7-12) in South Australia? ☐Yes ☐No. If No was selected, then; participants will exit the survey (Thank you for participating). OTHERWISE	This question was not modified.
3- Relationship Status: ☐ Monogamous relationship for less than three months ☐ Monogamous relationship for three months or more ☐ Dating and non-monogamous relationships ☐ Not in any intimate relationship	Not Modified
4- In which country were you born? Please Specify.	Not Modified
5- How would you describe your sexual orientation? **☐ Heterosexual Male ☐ Heterosexual Female ☐ Homosexual Male ☐ Lesbian ☐ Bisexual Male ☐ Bisexual Female ☐ Prefer not to say ☐ Other (please describe).**	Participants were asked about their sexual orientation instead of sexual identity.
6- Race/ethnicity: ☐ Indigenous Australian ☐ Anglo-Saxon ☐ Caucasian ☐ African American ☐ Hispanic/ Latino☐ Indian ☐ Asian/Pacific Islander ☐Others (Please Specify).	Not Modified
7- Religion: ☐ Christian ☐ Buddhist ☐ Muslim ☐ Hinduist ☐ Sikhist ☐ Baha'i ☐ Australian Aboriginal Traditional Religions ☐ Jewish ☐ Spiritualist ☐ Wiccan ☐ No religion ☐ I don't wish to say ☐ Others (Please Specify). If participants selected any option except NO religion, they would go to question 8a. a- How important is your religion to you? ☐Very important ☐ Quite important ☐ Not at all important☐ Not Applicable	Not Modified

In Section One, participants were asked about their sexual health, such as sexual status, the number of sexual partners, safer sex use, sex education, and parent/carer–teenage safer sex communication (see Table 4-2). Sexual status was measured as to whether young people considered themselves sexually active or inactive, while safer sex use measured their safer sex use history during previous sexual activities. Safer sex behaviour was measured by asking the study participants about the frequency of safer sex use in the last 6 months. Only a few items were modified from the pilot instrument, such as adding "stealthing" and "rape" options to the response scale. This modification was applied because a few participants in the pilot study stated "stealthing", and "rape" were reasons for engaging in unsafe sex.

Table 4-2: Sexual Health Items Used in Section One of the Main Study

	Main Instrument Used	***Modified Items from Pilot Study***
1-	Do you consider yourself as …? ☐Sexually active ☐Sexually inactive ☐ Unsure **(Please Specify)**	Yes, modified. Participants were asked to specify their sexual activity in case Unsure was selected
2-	How many different sex partners did you have in the last 6 months? ☐ 1 partner ☐ 2 partners ☐ 3 partners ☐ 4 partners ☐ 5 Partners ☐ 6 partners ☐ More than 6 ☐ None ☐**N/A**	Yes, modified. Not applicable (N/A) was added.
3-	When you were growing up, did your parents talk to you about using safer sex methods such as condom use or dental dam use before you started having sex? ☐ **All the Times** ☐ **Few Times** ☐**Once or Twice** ☐ Never	Yes, modified. "Most of the times", "About half the times", "sometimes all the times", "few times", "once or twice" were replaced by "All the times", "few times", "once or twice"
4-	Did your parents talk to you about using safer sex methods such as condom use or dental dam use after you started having sex? ☐**All the Times** ☐ **Few times** ☐ **Once or twice** ☐ Never ☐ Not applicable	Yes, modified. "Most of the times", "About half the times", "sometimes all the times", "few times", "once or twice" were replaced by "All the times", "few times", "once or twice"

Table 4-2 Continued: Sexual Health Items Used in Section One of the Main Study

	Main Instrument Used	*Modified Items from Pilot Study*
5-	Which types of contraception have you used within the last 6 Months? Condoms/ Oral contraceptive pill/ IUD/ Natural family planning/ Withdrawal method/ Implanted contraceptive/ Dental Dam/ None/ Not applicable/ **Other (Please Specify)**	Yes, modified. "Other (Please specify)" was added to response scale.
6-	If you ever had sex without a condom or dental dam, please give some reasons (tick all that apply): We used other forms of contraception (e.g. pill)/ We got carried away in the heat of the moment/We did not have access to condoms/ We were of the same gender so there was no pregnancy risk/ We are trying to get pregnant/ Due to alcohol or drug consumption condoms were ignored/ **Stealthing/ It was rape**/Not Applicable/ Other (please specify)	Yes, modified. "Stealthing" and "It was rape" were added to the response scale because a few participants in the pilot study gave these reasons for unsafe sex.
7-	If you ever had sex with a condom or dental dam please give some reasons (**all that apply**): Chief method of contraception/ Backup method of contraception/ Prevent transmission of STIs/ Never/ Not applicable/ Other (please specify)	Yes, modified. The response format was modified from choosing one response to all that applied.
8-	In the last 6 months, how often did you use safer sex methods such as condoms or dental dams? Always used / Most of the times used/ Sometimes used/ Rarely used/ Never used/ Not applicable (if sexually inactive)	Not modified.

Section Two: Safer Sex Intentions

DeHart and Birkimer's (1997) Sexual Risk Scale (SRS) was used to measure safer sex intentions. Written permission was sought from DeHart and Birkimer (1997) to use and modify the scale to fit the present study. The SRS instrument shown in Table 4-3 included generalised intentions subscale items. The intentions to use condom subscale comprised seven items that assessed intention to use condoms and practise safer sex during any sexual contact. Within these

seven items, DeHart and Birkimer (1997) had considered condom use as a safer sex method only during a heterosexual relationship. However, in the current study, all young people from different sexual identities were invited to participate. Thus, it was also essential to include dental dam use as a possible safer sex practice and rename the subscale as “generalised safer sex intentions” (see Table 4-3).

The subjective norms subscale of the SRS included seven items that aligned with the aim of this study to investigate the effect of TPB constructs, such as subjective norms, on safer sex intentions. However, a dental dam was also added to the statements that included condom use, and the subjective norms subscale was renamed as safer sex subjective norms (see Table 4-3).

The SRS attitudes subscale included 13 items that included experiential and instrumental attitudinal items. Experiential attitude items for an individual’s feelings toward safer sex included eight items, for example, “The proper use of a condom could enhance sexual pleasure”, and “Condoms interfere with romance”. In comparison, the instrumental attitude items for an individual’s evaluation of behaviour’s outcome included five items, for example, “Condoms ruin the natural sex act”, and “"Safer" sex reduces the mental pleasure of sex”. All 13 items measured safer sex attitudes for the use of a condom and aligned well with the aim of this study. Thus, the 13 items were used in the main questionnaire. However, the use of a dental dam was also added to the items that tested condom use. The attitudes’ subscale name was also revised to “safer sex attitudes”.

The partner’s expectations factor was another SRS subscale that included five items that measured the partner’s expectations to engage in safer sex. This subscale included items such as, “If my partner wanted me to have unprotected sex, I would probably "give in"”, and “If my partner wanted me to participate in "risky" sex and I said that we needed to be safer, we would

still probably end up having "unsafe" sex". Like the previously mentioned subscales, the partner's expectations items aligned with the aim of this study. The partner's expectations factor was one of the possible variables to test in the extended TPB model. Therefore, these five items were used in the main study. Like the other subscales, a dental dam was added to the items that included condom use, and the subscale was renamed as "safer sex partner's expectations".

Finally, the SRS instrument included two more subscales which were substance use and susceptibility. The substance use subscale included two items, namely, "When I socialize, I would probably not drink alcohol or use drugs" and "If I had a date, I would probably not drink alcohol or use drugs". This subscale was not included in the study because the demographic section of the main survey had questions about the frequency of alcohol and drug use. Similarly, the susceptibility subscale in the SRS that measured the perceived consequences of engaging in unsafe sex was not included in the main study because the study was not aimed at testing the effect of susceptibility on young people's safer sex intentions. Overall, only attitudes, subjective norms, intention, and expectations SRS subscale items (32 items) were used in this study.

However, while the SRS instrument included some of the TPB constructs, it did not have a subscale for perceived behavioural control. The expectancy scale in the SRS instrument only predicts the influence of the partner expectations on self-using safer sex. It does not assess if the participants have strong perceived behavioural control regarding using safer sex. As such, a partner's expectations and perceived behavioural control would be considered unrelated constructs. In other words, perceived behavioural control and expectancy are considered to be two independent factors. The perceived behavioural factor was measured by 7 items derived from the pilot study. These items were therefore added to the selected items from the SRS instrument.

The original format and order of the questions were maintained as DeHart and Birkimer (1997) listed them, however, the term "safer sex" defined as "condom/dental dam" use was used in the main questionnaire instead of the word "condom" that had been used in the original DeHart and Birkimer (1997) questionnaire. This modification was applied so that homosexual participants who used dental dams would be able to participate in this study. Also, both dental dams and condoms are considered to be safer sex methods.

The measures of psychological factors, namely safer sex attitudes, subjective norms, perceived behavioural control, and safer sex intentions, included responses on a 5-point Likert scale instead of a 7-point Likert scale. Similarly, a 5-point Likert scale was used to measure the partner's expectations factor. The 5-point Likert scale ranged from "Strongly Disagree" to "Strongly Agree", including a central "Neutral/Undecided" point. Higher scores indicated a stronger presence of the variable. Specifically, higher scores represented more positive attitudes about safer sex, greater perceived control to practise safer sex, greater norms toward safer sex, greater partner's expectations to practise safer sex, and greater safer sex intentions.

In summary, Section Two of the questionnaire included 39 items that assessed participants' safer sex attitudes, subjective norms, perceived behavioural control, partner's expectations, intentions, and substance use. Table 4-3 illustrates the 39 items in Section Two, including the adapted items from the "Sexual Risk Scale" instrument.

Table 4-3: Items Measuring Predictors of Safer Sex Intentions in Section Two of the Main Study

Generalised safer sex intentions (7 Items measured by Strongly Disagree/Strongly Agree)

- If I were going to have sex, I would take precautions to reduce my risk of STIs.
- I would try to use a condom/**dental dam** when I had sex.
- I would avoid using condoms/**dental dams** if at all possible *.
- "Safer" sex is a habit for me.
- I intend to follow "safer sex" guidelines within the next year.
- I am determined to practise "safer" sex.
- If I were going to have sex in the next year, I would use condoms/**dental dams**.

Safer Sex Attitudes (13 Items measured by Strongly Disagree/Strongly Agree)

- The proper use of a condom/**dental dam** could enhance sexual pleasure.
- Condoms/**dental dams** ruin the natural sex act *.
- Condoms/**dental dams** interfere with romance *.
- Generally, I am in favour of using condoms/**dental dams**.
- "Safer" sex reduces the mental pleasure of sex *.
- The idea of using a condom/**dental dam** does not appeal to me *.
- The sensory aspects (smell, touch) of condoms/**dental dams** make them unpleasant *.
- With condoms/**dental dams**, you cannot really "give yourself over" to your partner *.
- I think "safer" sex would get boring fast *.
- Condoms/**dental dams** are irritating *.
- People can get the same pleasure from "safer" sex as from unprotected sex.
- Using condoms/**dental dams** interrupts sex play *.
- It is a hassle to use condoms/**dental dams ***.

Safer Sex Subjective Norms (7 Items measured by Strongly Disagree/Strongly Agree)

- When I think that one of my friends might have sex on a date, I ask them if they have a condom/**dental dam**.
- My friends talk a lot about "safer" sex.
- If a friend knew that I might have sex on a date, he/she would ask me if I were carrying a condom/**dental dam**.
- If I thought that one of my friends had sex on a date, I would ask them if they used a condom/**dental dam**.
- If a friend knew that I had sex on a date, he/she would not care if I had used a condom/**dental dam** or not *.
- If I had sex and I told my friends that I did not use condoms/**dental dams**, they would be angry or disappointed.
- My friends and I encourage each other before dates to practise "safer" sex.

Table 4-3: Continued: Items Measuring the Antecedents of Safer Sex Intentions in Section Two of the Main Study

Safer Sex Perceived Behavioural Control (7 Items measured by Strongly Disagree/Strongly Agree)
• I am confident to use safer sex methods with my partner even under the influence of substance use. • The decision to use a safer sex method is beyond my control. • I am confident to suggest using a condom or **dental dam** with my partner, even if I am afraid that my partner would reject it. • I am confident to put on a condom or **dental dam** without breaking the sexual mood. • I am confident to buy condoms or **dental dams**, without feeling embarrassed. • I am confident to discuss condom or **dental dam** use, with my partner before having a sexual activity. • I am confident to use condom or **dental dam**, correctly on myself or my partner every time.
Safer Sex Partner's Expectations (5 Items measured by Strongly Disagree/Strongly Agree)
• If my partner wanted me to have unprotected sex, I would probably "give in" *. • If my partner wanted me to participate in "risky" sex and I said that we needed to be safer, we would still probably end up having "unsafe" sex *. • If my partner wanted me to participate in "risky" sex and I suggested a lower risk alternative, we would have the "safer" sex instead. • If my partner wanted me to have unprotected sex and I made some excuse to use a condom/dental dam, we would still end up having unprotected sex *. • If a sexual partner did not want to use condoms/**dental dams**, we would have sex without using condoms/**dental dams ***.

*Note: Bold **dental dam/s** indicates the term was added to the original items of the questionnaire. * indicates Reverse Score.*

Section Three: Sexual Experiences Information

Section Three of the purpose-built questionnaire included selected items from Lally et al.'s (2014) study and demographic questions (see Table 4-4). Overall, Section Three had 14 items. Participants were asked to provide details about their sex education experience, contraceptive knowledge, substance use, education level, STI services accessed, and fortnightly income. For example, participants were asked if they had received any education on sexually

transmitted infections (STIs) during their high school education. The response format was 'Yes', 'No' or 'Unsure'. If participants selected "No" or "Unsure", they would not be asked to answer any further questions about STI education. If participants selected "Yes", they were asked if they found the information useful. The response format was "I found it very useful", "I found it somewhat useful", or "I did not find it useful". Participants were also asked about their school category – whether it was Public, Religious, or Independent school.

Table 4-4: Sexual Health and Risky Behaviour Questions Used in Section 3 of the Main Study

1. Did you receive any Sex Education during the high school level Year 7-12? Yes/ No/ Unsure

   If No or Unsure was Selected: Skip to next question.
   If Yes was selected,

   a- Did you find the information you received useful? I found it very useful / I found it somewhat useful/ I did not find it useful.

   b- Do you remember what sex education program has been taught? Yes/ No/ Unsure

   If No or Unsure was Selected: Skip to next question.
   If Yes Selected:

   c- If you remember was the sex education program called: Teach it like it is (SHine SA)/Made in the Image of God / be READY/ The Rite Journey/ Others (Specify)

2. Did you receive any education on Sexually Transmitted Infections (STIs) during your high school study? Yes/ No/ Unsure

   If No or Unsure Selected: Skip to next question

   a- If Yes, did you find the information useful? I found it very useful/ I found it somewhat useful/ I did not find it useful

3. How would you rate your current knowledge of **contraception**?
   - Very Good – I am very knowledgeable
   - Good – I know a lot but there are things I am unsure of
   - Ok – I know some things but there many things I am unsure of
   - Quite poor – I am quite unsure about this topic
   - Very poor – I am very unsure about this topic

Table 4-4: Continued: Sexual Health and Risky Behaviour Questions Used in the Main Study

4. How often in the last 6 months have you consumed alcohol? Never/ One or twice in the last 6 months/ Several times in the last 6 months/ Once or twice a month/ Every weekend/ Several times a week/ Every day/ Several times a day/ I'm a benign drinker
5. How often in the last 6 months, have you used illicit drugs? Never/ One or twice in the last 6 months/ Several times in the last 6 months/ Once or twice a month/ Every weekend/ Several times a week/ Every day/ Several times a day
6. Did you receive any education on contraception during your high school study? Yes/ No/ Unsure. If No or Unsure Selected: Skip to next question a- If Yes, did you find the information useful? I found it very useful/ I found it somewhat useful/ I did not find it useful
7. In which category does your previous high school fit? Independent school/ Lutheran School/ Christian School/ Public School /Catholic School/ Islamic School/Others (Please Specify)
8. Have you ever attended a family planning clinic, an STI clinic or your own GP for advice about STIs? Yes /No/Unsure
9. Have you ever attended a family planning clinic, an STI clinic or your own GP for STI testing? Yes/ No/ Unsure
10. What is your main source of income? Centrelink/ Parents/ Work/ Friends/ Others (Specify)
11. What is your fortnightly income? <400/ Between 400 & 999/ Between 1000 & 1499/ between 1500 & 1999/ >2000
12. With whom do you live? Living with both parents/ Living with either parent/ Living with my partner/ Living with my friends or housemates/ Living between my parents and partner's house/ Living alone/ Others (Please Specify)
13. Which description best describes your educational level? TAFE SA student/ Undergraduate/ Postgraduate/ High School/ Other (Please Specify)
14. What is the main language other than English spoken at home? Italian/ Greek/ Mandarin/ Vietnamese/ Cantonese/ Arabic/ German/ Polish/ Spanish/ Punjabi/ Hindi/ Not applicable (Only English) / Others (Please Specify)

Note: **Bold** Words indicate the reviewed items based on the pilot study.

4.2 Recruitment Procedure: Participants and Sampling

South Australian young people were invited to complete an online questionnaire. Like the pilot study's selection criteria, South Australian young people aged 18–24 years, who had done

their high school education in SA, were recruited for participating in this study. International students were excluded. The study was conducted with self-selected South Australian young people from diverse sexual identities. A convenience (non-random) sample (Farrokhi & Mahmoudi-Hamidabad, 2012) was used, similar to the sampling method used in the pilot study. The main study was also entitled: "Let's Talk About Safer Sex".

Posted flyers included a description of the study, selection criteria, online link, barcode, and Facebook page address (@LetsTalkSaferSex). The posted flyers informed potential participants that they would be asked about their sexual life, safer sex attitudes, perceived behavioural control, subjective norms, partner's expectations, and substance use (see Appendix 9.3).

Over three hundred flyers were posted at Flinders University on pin-up boards and toilet doors. Outside the University, flyers were distributed at SHine SA, South Australia Mobilisation and Empowerment for Sexual Health (SA MESH), and Genesis Pregnancy Support Inc. Services, after gaining their permission to do so (see Appendix 9.4). SA MESH, SHine SA and Genesis Pregnancy Support were invited to assist in recruiting participants to increase the participation study rate. SHINE SA, SA MESH, Genesis Pregnancy Support Inc., and the Flinders University Queer Society were approached to share the questionnaire link on their Facebook pages. The online questionnaire and the flyers (except for Genesis Pregnancy Support Inc.) were advertised under the title of "Let's Talk About Safer Sex".

The researcher had emailed the CEOs of these organisations with the study information sheet and a permission letter. The permission letter included information about the aim of the study and the recruitment process. After gaining written consent (via email) to participate in the study, the researcher organised a meeting with the CEOs of these organisations. The researcher

asked these organisations to post flyers in their clinics and share the study link on their Facebook pages. The participation of SA MESH, SHine SA and Genesis Pregnancy Support Inc. enriched the sample with sexually inactive and young people with diverse sexual identities. These organisations were contacted due to their active roles in South Australia, especially in sexual health and sex education.

Genesis Pregnancy Support Inc. runs the 'be-Ready' sexuality education program, which focuses on safe sex, and many young people probably visit their Health Service Clinic. The flyers posted at Genesis Pregnancy Support Inc. were named "Let's Talk About Safe(r) Sex" as the organisation CEO requested (see Appendix 9.5). By posting flyers, the researcher ensured that sexually inactive young people were invited to participate.

Similarly, SHine SA runs the 'Teach It Like It Is' sexuality education program, has sexual health clinics for STI testing and consultation, and supports the LGBTIQ community. SA MESH works with SHine SA and Thorne Harbour Health, both of which organisations provide community-based support for education, training and advocacy of sexual health and HIV. Therefore, with the help of the first two organisations (SHine SA and SA MESH), the researcher ensured that the LGBTIQ community and other sexually active young people had a voice in the study.

The researcher also used a Facebook page for this study entitled "Let's Talk About Safer Sex" (@LetsTalkSaferSex) as one of the main recruitment portals. The study link was also posted on that Facebook page with a brief description of the study aim and the targeted population. A specific paid 'Facebook advertisement settings' was set up to recruit participants aged 18–24 years and living in SA (see Appendix 9.6). This approach was used to make sure that the collected sample was diverse.

Participants had different options to access the survey, such as typing the link from the posted flyers, scanning the barcode, or clicking on the link attached on the study Facebook page. Upon accessing the link, participants were provided with an information sheet and asked to read and download it. Participants had then to click the "NEXT" button to access an informed consent form. Like the pilot study consent form, the main study's online consent form included a seven-item checklist (see Appendix 9.7). Once participants had completed the consent form, they were required to click the "NEXT" button and begin the online survey.

Once participants had finished answering all the questions, a "thank you for completing the questionnaire" statement appeared at the end of the questionnaire in a large and bold font. Participants had to press "DONE" when they had finished. However, if participants who did not fit the selection criteria by being younger than 18, older than 24, or not finishing their high school education in SA started the questionnaire, they would automatically exit the questionnaire with the same thank-you statement. All responses, whether complete or incomplete, were automatically saved on Survey Monkey. The questionnaire was shorter than the pilot questionnaire, and participants spent an average of 23 minutes completing the questionnaire. They did not receive any compensation for their participation in the study.

As with the pilot study, participants' safety and mental well-being were a priority. The researcher provided participants with local numbers for counselling services in South Australia. The following message was posted at the beginning of each section of the questionnaire:

> "If you experience any distress during or after participating in this survey, you can access support by calling Lifeline Adelaide 24/7 on 13 11 14, Flinders counselling service on 082012118, SHine SA Sexual Healthline on 1300 883 793 or HIV PEP Hotline on 1800 022 226."

Also, the researcher provided participants with definitions regarding the terms used, such as “safer sex” and “partner”, before each section. Based on the pilot suggestions, a clearer definition of ‘safer sex’ was used. Here safer sex was defined as ‘the use of condoms or/and dental dams during a sexual activity’ instead of “using a condom or dental dam”. The definition of partner was kept the same: “anyone that participants might sexually engage with such as a casual partner, girlfriend, boyfriend, wife, husband, or sex worker”.

4.3 **Data Collection**

Participants were recruited over a 3-month period between July and September 2017. A convenience sample of 1,315 participants initiated the survey. A total of 1,139 participants met the selection criteria. The current study focused on the 911 cases that completed Section Two of the questionnaire with no missing data on any TPB constructs. This response rate is considered adequate for a survey of this length and type, as well as when it is compared to other national studies (Barlett, Kotrlik, & Higgins, 2001; Boldero, Sanitioso, & Brain, 1999; Bryant et al., 2011; Calabretto, 2009; Newton, Newton, Windisch, & Ewing, 2012; Richters, Prestage, Schneider, & Clayton, 2010). For example, in Newton et al.’s (2012) study, only 1,113 participants out of 2,289 cases had completed the survey with no missing data, meaning less than half of the convenience sample (48.6%) had completed the survey.

4.4 **Data Analysis**

After collecting the data, it was cleaned, recoded, or reverse-coded where appropriate. Following the DeHart and Birkimer (1997) instructions presented in the previous Table 4-3, several items required reverse coding because they were negatively worded, such as “The idea of using a condom/dental dam does not appeal to me.”

Participants who did not complete Section Two were removed from the database, which involved 228 cases. In other words, only the responses of the participants who completed Sections One and Two of the questionnaires, regardless of whether Section Three was completed or not, were considered in the final analysis. This listwise deletion approach (Chen & Åstebro, 2003; Rubin, 1976) was used instead of using missing data imputation techniques (Hayes, Slater, & Snyder, 2008). The researcher acknowledges that listwise deletion is "a method that is known to be one of the worst available" (Hayes et al., 2008, p. 351); however, since the amount of missing data was small (20%) within a large amount of data (Field, 2018), then listwise deletion was an acceptable approach. The results for several items such as the "If you remember, what was the sex education program", "Did you receive any education on contraception during your high school study?", and "Did you receive any education on Sexually Transmitted Infections (STIs) during your high school study?" were excluded from the study due to the small sample size of the participants who were able to recall these events.

Prior to analysing the collected data, a few variables such as sex education, alcohol consumption and drug use required to be dichotomised (Yes or No responses) for an easier analysis (Royston, Altman, & Sauerbrei, 2006). Sex education was measured by one item as "Did you receive any Sex Education during the high school level Year 7-12? Yes/ No/ Unsure". If participants answered 'Unsure' and did not remember the sex education program, a 'No' response was recorded. However, a 'Yes' response was recorded if participants selected the 'Yes' response or 'No' but remembered the sex education program. Similarly, consumption of alcohol and illicit drugs use was measured by "How often in the last 6 months have you consumed alcohol?" and "How often in the last 6 months have you used illicit drugs?",

respectively. Both variables were dichotomised to ‘No’ when the ‘Never” response presented, while ‘Yes’ presented the other listed options.

Items from Sections One and Two were analysed using descriptive statistics. Descriptive analysis was used to calculate frequency and percentages for categorical data such as sexual identity, fortnightly incomes, safer sex use, etc. Mean and standard deviation were calculated for the normally distributed continuous variables such as age.

Because the data were normally distributed and linear, the Pearson’s correlation (Sheskin, 2007) parametric test was used to investigate the relationship between frequency of condom or dental dam use and the number of sexual partners. Non-parametric tests such as chi-square were used to examine the differences between sexually active and inactive participants in terms of religiosity and place of birth. Chi-square was reported because the tested variables were categorical with non-zero cells (Conover, 1999). Cramer’s V was also used to calculate effect size where chi-square tests were employed (Grissom & Kim, 2005), while a one-way ANOVA test was used to examine the differences between age and relationship status. The one-way ANOVA test was reported because one of the tested variables was a linear and continuous variable while the other variable was categorical with more than 2 groups (Field, 2018). The Independent samples T-test was also used to compare the means and to look for differences between sexual status and participant’s age (Field, 2018).

The statistical analysis of the data related to the proposed Extended TPB Safer Sex Model was carried out using Mplus version 8.5. The use of the Mplus, a syntax-based program, was preferable over AMOS and SPSS, as Mplus has greater flexibility, and mixed models with categorical and continuous data can be run. Using Mplus also makes it easy to deal with the

missing data where a Full Information Maximum Likelihood (FIML) estimation was run. Mplus also deals with non-normally distributed data (Muthén & Muthén, 2010).

4.4.1 **Structural Equation Modeling (SEM)**

Structural Equation Modeling (SEM) was used to examine the proposed Extended Safer Sex Use Model (ESSUM) for practising safer sex among South Australian young people. Ajzen et al. (1996) suggested using Structural Equation Modeling (SEM) for accounting for condom use intentions and for predicting actual condom use behaviour. In their study, Ajzen et al. (1996) applied the TPB on adolescents' condom use. They justified using SEM, noting that SEM was

> … used to evaluate the fit between the data and the theory of planned behaviour, taking into account random and systematic measurement error, and to estimate the amount of variance in intentions and behaviour explained by the model (p. 754).

Research has shown that when the phenomena of interest are complex and multidimensional, such as safer sex intentions, "SEM is the only analysis that allows complete and simultaneous tests of all the relations" (Ullman, 2006, p. 38).

Diagrams are essential to SEM. They show the association between the tested variables in the model. There is a series of conventions that are used when developing a SEM diagram. As Ullman (2006) explained, in the diagram, squares or rectangles represent the measured variables, also known as observed variables, indicators, or manifest variables. In this study, the measured variables were all items of the proposed model, including the TPB constructs and the background factors. Circles or ovals in path diagrams refer to the latent variables, construct, or unobserved variables. These variables are called factors because they have more than one indicator. Attitudes, subjective norms, perceived behavioural control, partner's expectations, and substance use were all latent variables in this study.

The presence of lines implies an association between the variables, while their absence indicates no direct relationship. Lines have either one or two arrows. A line presents a direct association between two variables with one arrow (→), where the arrow points to the dependent variable. Two-way arrows (↔) imply no direct effect between the two variables and suggest a covariance between them. All dependent variables have one-way arrows with a small circle pointed to them. These arrows are called residual or error variables because "nothing is perfectly predicted" (Ullman, 2006, p. 37). The residual arrows represent the variance not predicted by the independent variables (Ullman, 2006).

All tested models were assessed using the SEM fit indices, following Kline (2016) recommendations. The fit indices included running chi-square (χ^2) statistical tests to test if the proposed model fit the actual collected data. The chi-square test allowed for 'exact-fit hypothesis', as described by Kline (2016). It was expected chi-square to be non-significant for the proposed model to fit the observed data (Hox & Bechger, 1998). However, as Hox and Bechger (1998) highlighted, chi-square is very sensitive to sample size, and alternative fit indices could be needed to assess model fit. Thus, it was expected that, due to having a large sample size, chi-square would be non-significant.

Overall, several goodness-of-fit indices were worthy of consideration if the model chi-square analyses failed. For this reason, RMSEA, RMSEA 90 CI., CFI, TLI and SRMR were used to test the model fit of the indicators for each predictor. As discussed in Section 3.3.4.1, SRMR values should be close to 0.08 or below; RMSEA values 0.06 or below; and CFI and TLI values be close to 0.95 or greater (Brown, 2015); while for RMSEA 90 CI., the lower limit value for the 'close-fit hypothesis' not to be rejected should be less than or equal to 0.05, while the

upper limit value for the 'poor-fit hypothesis' not to be rejected should be greater or equal to 0.1 (Kline, 2016).

Having described SEM, all the predictors to safer sex intention and behaviour were tested for construct validity as convergent validity and reliability. More specifically, safer sex attitudes, subjective norms, perceived behavioural control, and partner's expectations were tested individually using CFA. Convergent validity "is the assessment to measure the level of correlation of multiple indicators of the same construct that are in agreement" (Ab Hamid, Sami, & Mohmad Sidek, 2017, p. 2). The convergent validity includes the factor loadings, the average variance extract (AVE) and reliability, while construct validity is also made up of Discriminant validity (Jöreskog, 1969). The Average Variance Extract (AVE) was calculated following Fornell and Larcker (1981) suggestions. It was expected that AVE would be equal to 0.50 or greater for the verification of convergent validity. Composite reliability was also computed for each of the latent variables using Hancock and Cudeck's (2001) 'coefficient H' instead of Cronbach's alpha. 'Coefficient H' was preferred because it is considered a better measure of reliability (Brunner & Heinz-Martin, 2005) than Cronbach's alpha.

Safer sex attitudes, subjective norms, perceived behavioural control, and partner's expectations factors were also tested separately with safe sex intentions to examine their predicting effect. In other words, to test the effect of each factor on safer sex intentions, all Intention for Safer Sex (ISS) factors, specifically attitudes, subjective norms, and perceived behavioural control, were tested independently to determine whether they were predictors of safer sex intentions.

Prior to testing the proposed intention to safer sex model by using Mplus 8.4, it was important to examine the TPB model for safer sex then to add the identified antecedents and

background factors one by one to the model. To test the effect of the TPB model on safer sex behaviour, a path analysis was run. Safer sex behaviour was added to the TPB model. In order to identify where the identified factors best fit in the model, all the suggested additional factors as either antecedents or background factors were added and tested individually in the TPB. For example, sexual status was added to the TPB model and was examined first as a background factor, then as an antecedent. Similarly, the other factors were tested in the same way. Based on the results of their best fit, all the factors were added to the model and SEM was conducted. The items for each factor were presented as a shortened version for easier display when graphically presented.

Thus, SEM was used to test whether the proposed model was consistent with the data in predicting safer sex intentions of South Australian young people. If the model resulted in good fitting indices, it was then concluded that the model represented the set of relationships between the variables that could possibly explain safer sex intentions.

However, when the model was found not fit, then an exploratory mode was used to test an alternative SEM model. Following Reuter et al. (2003) suggestions, model trimming was used to yield a satisfying fit indices and to have better model fit. These alternative models were based on the SEM data analysis and the significant relationships between the obtained variables (Byrne, 2013).

Score reliability was also computed for each of the TPB constructs and expectancy predictors using Hancock and Mueller's (2001) 'coefficient H'. Like Cronbach's alpha, coefficient H value should be above 0.70 for the factor to be reliable (Hancock & Cudeck, 2001).

5- RESULTS

5.1 Participants

In total, 911 South Australian young people aged 18–24 years provided information that formed the data for this study. The average age of study participants was 20.5 (SD=1.87) years. The sexual orientation of participants included being heterosexual females (65.1%, n=593), bi-sexual females (19.8%, n=176), heterosexual males (4.4%, n=40), bi-sexual males (2.5%, n=23), homosexual females (3.7%, n=34), homosexual males (3.2%, n=29) and asexual (1.8%, n= 16).

Missing data were minimal, ranging from 0.2% to 2.4% for all variables after applying a listwise deletion. Only a few respondents did not provide information about parent/carer–teenage safer sex communication (1%, n=9), alcohol use (0.2 %, n=2), illicit drug use (0.2 %, n=2), who they lived with (2.5%, n=23), their education level (2.4%, n= 22) and their fortnightly income (2.3%, n= 21).

The majority (90.8%, n= 827) of South Australian young people were sexually active, and 88.2% (n= 803) of the participants reported that they had sex in the last 6 months. Some indicated a busy lifestyle or illness as reasons for being sexually inactive. Less than one in ten (9.2%, n= 84) of the participants considered themselves sexually inactive and had never had sex during their lifetime. There was a significant difference in the age for sexually inactive (M= 20.08, SD= 1.86) and sexually active (M= 20.57, SD= 1.87) participants: $t(909)= 2.27$, $p = 0.024$. Sexually active participants were more likely to be older compared to the sexually inactive respondents.

More than half (61%, n= 520) of the participants were either married or had been in a monogamous relationship for more than 3 months. Nearly one-fifth (18.2%, n=166) of the

respondents were either in a monogamous relationship for less than 3 months or just dating, while the remainder (24.7%, n=225) of the participants were not in any relationship. The relationship status was significantly affected by the age of the participants, $F(4, 906) = 23.88$, $p<0.0001$. Older participants were more likely to be married or to have been in a monogamous relationship for more than 3 months than were younger respondents.

The majority (93.6%, n=774) of both sexually active and inactive (94%, n=79) respondents were born in Australia. There was no statistically significant difference between sexually active and inactive participants regarding their place of birth ($\chi^2(1) = 0.027$, $p >0.05$, Cramer's V = 0.01). Most participants described themselves as Anglo-Saxon/Caucasian (95.8%, n= 873) while the reminder identified with other cultures grouped together (2.6 %, n=23), including Indian, African American, Latino/Hispanic and Asian/Pacific Islander. A very small proportion (1.6%, n=15) of the participants were Indigenous Australians.

More than half (68.1%, n=620) of the participants indicated that they had no religion. However, there was a statistically significant difference between sexually active and inactive young people in terms of their religiosity ($\chi^2(1) = 16.94$, $p<0.0001$ (two-tailed), Cramer's V= 0.14). Sexually inactive respondents were more likely to be religious and committed to a religion than were sexually active respondents.

Over a third (37.4%, n=332) of respondents were living with both parents/carers, nearly one in seven (15.2%, n=135) respondents was living with one of their parents. In comparison, one-fifth (19.1%, n=170) of participants indicated that they were living with their partner. The remainder of the participants were living with family members (2.9%, n=25), friends (11.3%, n=100), between a partner and family (9.8%, n=87) or living alone (4.4%, n=39).

More than half (56.1%, n= 499) of participants were undergraduate or graduate university students. Nearly one-fifth (19.8%, n=180) of participants were graduate high school students, 14.1% (n=128) were undergraduate or graduated vocational students, and a small percentage (9%, n=82) indicated that they were postgraduate students.

Employment was reported by over half (65.4 %, n=579) of respondents as their primary source of income. In contrast, about one in eight respondents reported that their source of income was from Centrelink (as receiving government payment support) (11.8%, n=104), a combination of work and Centrelink (12.4%, n=110) or from other sources such as parents, partner, family or being on a scholarship (10.4%, n=118).

The majority (54.7%, n=487) of participants reported their fortnightly income as being between $1,000 and $1,499 AUD, whereas one third (34.3%, n=305) of respondents indicated their fortnightly income was below $999 AUD, and one in nine (11%, n=98) reported a fortnightly income that was over $1,500 AUD. The participants' earnings were found to be below the local average fortnightly income ($3,045.80 AUD) in South Australia (ABS, 2020).

The majority (93.1%, n=848) of the respondents indicated that they were enrolled in a sex education program during their high school years, while a very small proportion (6.9%, n= 63) reported that they had never participated in a sex education program. More than half (62.5%, n= 569) of the participants had experienced parent/carer–teenage safer sex communication before and/or after becoming sexually active, while more than one third (37.5 %, n=342) had not experienced any parent/carer–teenage safer sex communication.

Nearly three quarters (71.1%, n=648) of the participants reported that they had not used illicit drugs in the last 6 months, while the remainder (28.5%, n=261) indicated that they had

used them. The majority (94.0%, n=856) of the respondents had consumed alcohol in the last 6 months, while 5.8% (n= 53) of the participants had not.

5.1.1 Safer Sex Use

Over one quarter (29.2%) of sexually active respondents who had sex in the last 6 months indicated that they had never used condoms or dental dams in that time. As shown in Table 5-1, respondents most commonly reported that they had never used a condom, and only one in five (21%) always used one. In comparison, intermittent use was reported by approximately half (49.8%) of the respondents.

Table 5-1: Self-reported Safer Sex Use among Sexually Active Participants who had sex in the last 6 Months

	Frequency (n)	**Percent (%)**
Never Used Condom	234	29.2
Rarely Used	134	16.7
Sometimes Used	143	17.8
Most of the Time Used	123	15.3
Always Used	169	21.0
Total	803	100.0

More than half (69.5%, n=558) of sexually active respondents who had sex in the last 6 months indicated that they had one sexual partner and that they had been in a monogamous relationship for the previous 3 months or more (51.6%, n=414) (Table 5-2).

Table 5-2: Number of sexual partners and the relationship status of sexually active young people who had sex in the last 6 months

Characteristics	Frequency (n)	Percent (%)
Number of sexual partners in the last 6 months		
1 Partner	558	69.5
2 Partners	102	12.7
3 Partners	44	5.5
4 Partners	38	4.7
5 Partners	19	2.4
6 Partners and more	42	5.2
Relationship Status		
Married - De facto relationship	99	12.3
Monogamous relationship for 3 months or more	414	51.6
Monogamous relationship for less than 3 months	48	6.0
Dating and non-monogamous relationships	111	13.8
Not in any intimate relationship	131	16.3
Total	**803**	**100**

The frequency of condom or dental dam use was significantly correlated with the number of sexual partners ($r_s = 0.303$, $p<0.01$, N= 887). In other words, safer sex was more likely to be used when young people were engaged in more than one sexual relationship. However, while statistically significant, the relationship was not strong, suggesting that some young people with more than one sexual partner were not practising safer sex.

Condom use (74.3%), the use of a contraceptive pill to prevent pregnancy (47.5%) and practising withdrawal (23.7%) were the main contraceptive methods used in the last 6 months by sexually active respondents (Table 5-3). Nearly one quarter (23.2%, n= 211) of sexually active and inactive participants reported using contraceptive pills for therapeutic reasons, while more than a quarter (26.6%, n=242) had not used any contraception in the last 6 months.

Table 5-3: The types of contraception that sexually active and inactive young people had used in the last 6 months*

Contraceptive Method	Frequency (n)	Percent (%)
Condom	677	74.3
Pill to prevent pregnancy	433	47.5
Withdrawal	216	23.7
Pill for therapeutic reasons	211	23.2
Birth Control Implant: Implanon	134	14.7
Others (IUD, Family Planning method, Depo Provera, Plan B Morning Pill, Dental Dam, Vaginal Cap)	101	11.1
None	242	26.6
Total*	1760	

Note: * Multiple responses

Sexually active participants were asked about their reasons for using safer sex during their sexual activity. More than half of the respondents indicated that using safer sex was to "prevent the acquisition of STIs" (54.1%) and as a "back up method of contraception" (51.9%) (see Table 5-4). Sexually active participants also indicated that safer sex practices were used for hygienic reasons (1.3%) such as, "it's less messy", "for cleanliness during anal intercourse" or for "period sex", "to save clean up hassle afterwards", "less dirty when having sex", and "to prevent blood/faecal matter contamination".

Table 5-4: Reasons sexually active young people used safer sex methods

	Reasons for using Safer Sex	
	Frequency (n)	**Percent(%)**
Chief method of contraception	396	47.8
Back up method of contraception	430	51.9
Prevents acquisition of STIs	448	54.1
Hygiene	11	1.3
To try	1	0.1
Never used	234	29.2
Total*	**1355**	

Note: * Multiple responses

5.2 Intention for Safer Sex Model (ISSM)

This section reports the results of one factor congeneric analysis CFA conducted on each of the antecedents of the TPB model, and the items of safer sex intentions. Convergent validity of intention to safer sex was undertaken and reported after running one-factor congeneric validity and reliability.

5.2.1 Convergence of Items on Safer Sex Factors

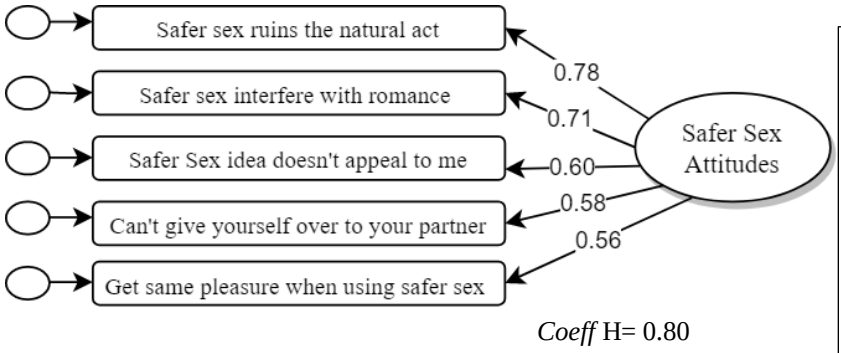
The results of the one-factor congeneric models of the safer sex predictor variables with standardised factor loadings are shown in Figure 4-1 (1) – (4). The results showed that all tested factors were reliable with Coefficient H values that ranged between 0.70 and 0.84. All factors had good model fit indices. The chi-square test of the safer sex factors was not significant, indicating that these factors were a good match between the observed and the predicted model. These tested factors had RMSEA values less than 0.05, suggesting that they were well-fitting models. Lower RMESA 90 C.I. was equal to 0.000 in all the one-factor congeneric models. This suggests that the 'close-fit' hypothesis for these models was not rejected. Similarly, Higher RMSEA 90 C.I. was less than 0.1. This implies that the 'poor-fit' hypothesis could be rejected

for all these tested models. For all the models, the probability that RMSEA was less than or equal to 0.05 was greater than 75%.

These findings, therefore, suggest that the tested models were satisfactory measures of the Intention to Safer Sex (ISS) constructs, although the factor loadings for some of the indicators of subjective norms ("My Friends would get angry if I practised unsafe sex"), perceived behavioural control ("Take safer sex precautions to reduce STIs') and partner's expectations ("Would suggest safer sex use instead of risky sex") were low ranging between 0.36 and 0.45. According to Hair, Black, Babin, and Anderson (2010), the standardised factor loadings should be 0.5 or higher, and 0.7 and higher would be more ideal. However, all the factor loadings were within the normal range between 0.5 and higher, except for the previously discussed indicators for subjective norms, perceived behavioural control and partner's expectations. However, Brown (2015) suggested that factor loadings higher or equal to 0.30 or 0.40 could still be considered salient. For this reason, indicators with low loadings were retained in the model.

Figure 5-1: Intention to Safer Sex Model (ISSM) Predictors: One Factor Congeneric Models

1- Safer Sex Attitudes

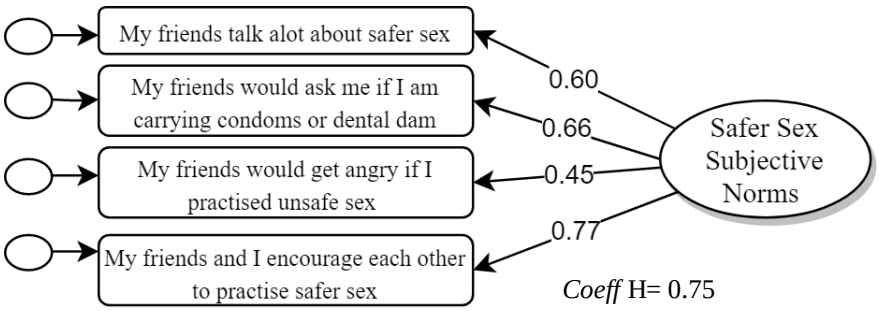


Coeff H= 0.80

Fit Indices

χ^2 (5) = 10.14, *p=0.072*	
RMSEA	0.034
RMSEA 90C.I	
0.000– 0.064	
Probability RMSEA	
<=.05	0.787
CFI	0.995
TLI	0.991
SRMR	0.014

2- Safer Sex Subjective Norms

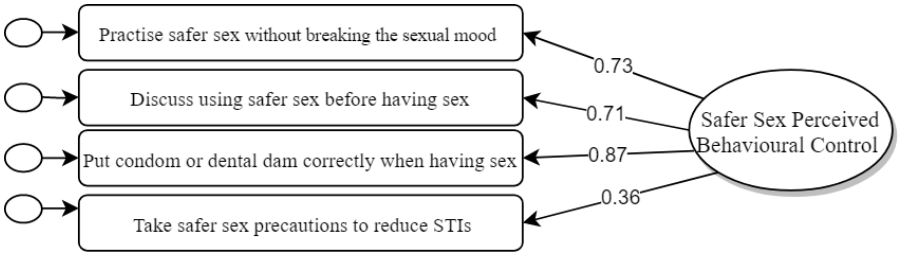


Coeff H= 0.75

Fit Indices

χ^2 (2) = 0.382, *p=0.826*	
RMSEA	0.000
RMSEA 90C.I	
0.000– 0.039	
Probability RMSEA	
<=.05	0.978
CFI	1
TLI	1
SRMR	0.004

3- Safer Sex Perceived Control



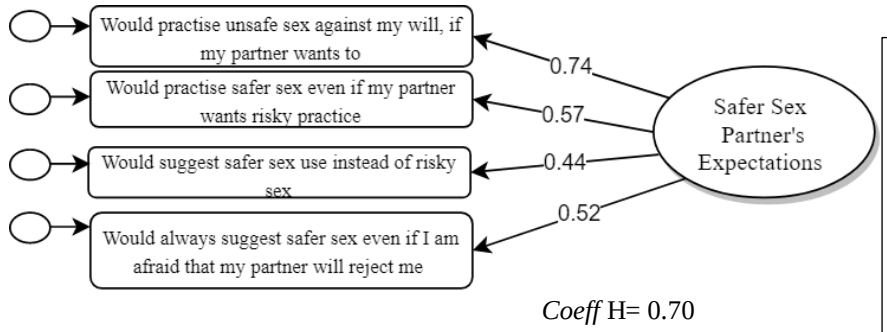
Coeff H= 0.84

Fit Indices

χ^2 (2) = 2.280, *p=0.320*	
RMSEA	0.012
RMSEA 90C.I	
0.000– 0.068	
Probability RMSEA	
<=.05	0.819
CFI	1
TLI	0.999
SRMR	0.008

Figure 5-1: Continued: Intention to Safer Sex Model (ISSM) Predictors: One Factor Congeneric Models

4- Safer Sex Partner's Expectations



Coeff H= 0.70

Fit Indices

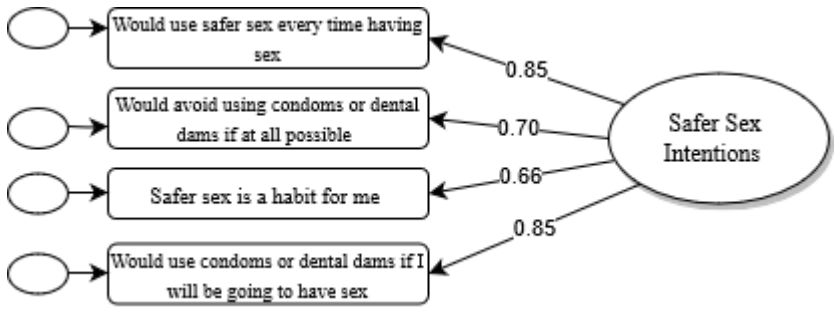
χ^2 (2) = 2.824, *p=0.244*	
RMSEA	0.021
RMSEA 90C.I	0.000– 0.073
Probability RMSEA <=.05	0.765
CFI	0.998
TLI	0.995
SRMR	0.011

5.2.2 **Safer Sex Intentions**

The safer sex intentions model was achieved with good fit indices. Analyses of the SEM output found that "if I were going to have sex, I would take precautions to reduce my risk of STIs", "I intend to follow "safer sex" guidelines within the next year" and "I am determined to practice "safer" sex" were not good indicators of safer sex intentions due to unsatisfactory absolute correlation residuals. As a result, they were dropped. The safer sex intentions latent variable therefore comprised four indicators that included: "I would try to use a condom/dental dam when I had sex", "I would avoid using condoms/dental dams if at all possible", "Safer sex is a habit for me" and "If I were going to have sex in the next year, I would use condoms/dental dams".

As shown in Figure 5-2, the model of safer sex intentions was a reliable measure with a good Coefficient H value (H=0.87). Convergent validity showed that the safer sex intention model had good fit indices and passed the chi-square test.

Figure 5-2: Model of Safer Sex Intentions



Coeff H= 0.87

Fit Indices

χ^2 (2) = 1.786, *p=0.410*	
RMSEA	0.000
RMSEA 90C.I	0.000– 0.064
Probability RMSEA <=.05	0.866
CFI	1
TLI	1
SRMR	0.005

5.2.3 Structural Validity of Intention for Safer Sex TPB Factors

Structural validity of the TPB factors, namely safer sex attitudes, subjective norms and perceived behavioural control, was undertaken after running one-factor congeneric validity and reliability tests. The structural validity was evaluated by calculating Average Variance Extracted (AVE) as the convergent validity. As discussed in Chapter 4, Section 4.4.1, convergent validity measures the level of correlation of multiple indicators of the same construct. Table 5-5 presents the AVE of the TPB constructs. The results of the AVE for all the TPB constructs were greater than 0.5, indicating that latent variables had a convergent validity (Fornell & Larcker, 1981). The composite reliability as coefficient H of the measurements was found equal and greater than 0.7. This suggests the TPB constructs, namely attitudes, subjective norms, and perceived behavioural control, had the required internal consistency reliability between their indicator variables.

Table 5-5: Convergent and structural validity of the TPB Constructs

Latent Variables	Average Variance Extracted (AVE)	Composite Reliability (*Coeff* H)
Attitudes	0.78	0.80
Subjective Norms	0.85	0.83
Perceived Behavioural Control	0.89	0.84

The covariance matrix of the first model, with all the indicators and safer sex predictor latent variables showed a significant but weak correlation between TPB factors ranging between 0.33 and 0.38. The covariance matrix of the first model with TPB indicators showed good fit indices (χ^2 (6) = 22.98, p= 0.20, RMSEA= 0.022, CFI= 0.997, TLI=0.993, SRMR = 0.016) between the model and observed data.

The latent factor correlation matrix, as illustrated in Table 5-6, showed that there was a significant weak correlation between the TPB factors ranging between 0.33 and 0.38. These results suggested that there was a weak positive association between the TPB constructs.

Table 5-6: Safer Sex CFA: Latent Factor Correlations (standardised)

	Attitudes	Subjective Norms	Perceived Control
Attitudes	1		
Subjective Norms	0.35***	1	
Perceived Control	0.39***	0.33***	1

***p<0.0001.

5.3 **Predictors of Safer Sex Intentions**

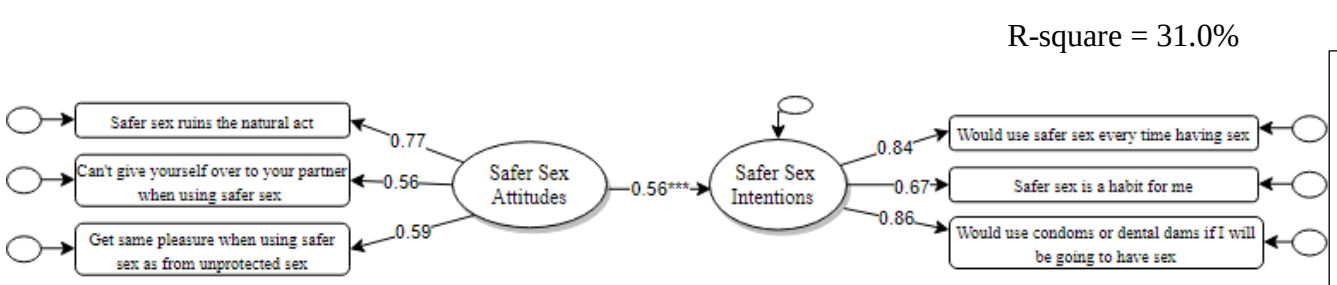
All Intention for Safer Sex (ISS) factors were significant predictors of safer sex intentions with good fit indices and Coefficient H values. The regression models shown in Figures 5-3 (1) – (4) were the best fitting models for each of the safer sex factors when regressed on safer sex intentions. Poor-fitting indicators were excluded from the models. For example, in Figure 5- (1), the items "Condoms/dental dams interfere with romance" and "The idea of using a condom/dental dam doesn't appeal to me" were excluded from the safer sex attitudes latent variables, while "I would avoid using condoms/dental dams if at all possible" was removed as a safer sex intention indicator.

As shown in Figure 5-3, the safer sex attitude latent factor was the strongest predictor of safer sex intentions explaining 31% of the variance, followed by perceived behavioural control (16.9%) and subjective norms (13.8%), while the partner's expectations factor was the weakest predictor explaining 10.3% of the variance of safer sex intentions. The latter finding suggests that a partner's expectations could act as a background factor in the Extended Safer Sex Use Model (ESSUM) rather than an antecedent to safer sex intentions.

As illustrated in Figure 5-3, all the models passed the chi-square test. These regression models had RMSEA values less than 0.05, suggesting that they were well-fitting models. All models had lower RMESA 90 C.I. equal to 0.000, indicating that the 'close-fit' hypothesis for these models was not rejected. Similarly, higher RMSEA 90 C.I. was less than 0.1. This implies that the 'poor-fit' hypothesis could be rejected for all these tested models. For all the models, the probability that RMSEA was less than or equal to 0.05 was greater than 70%. These findings suggest that ISS factors were significantly associated with safer sex intentions.

Figure 5-3: Predictors of Safer Sex Intentions

1- Safer Sex Attitudes with Intention



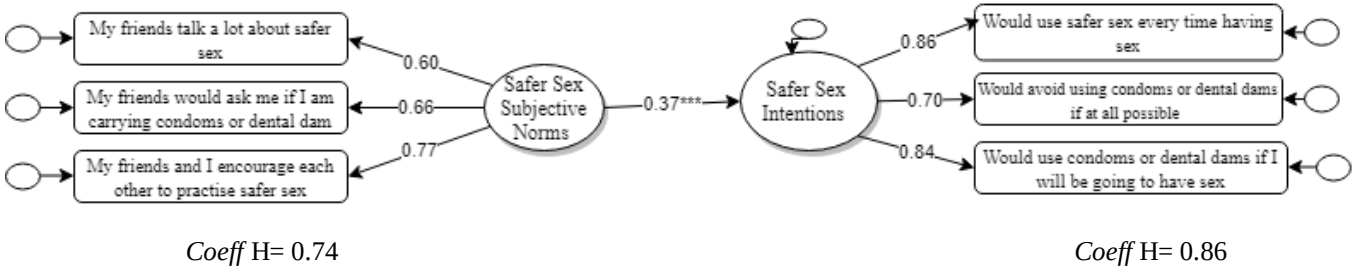
Coeff H= 0.71

Coeff H= 0.86

Fit Indices

χ^2 (8) = 14.93, *p=0.061*	
RMSEA	0.031
RMSEA 90C.I	0.000– 0.055
Probability RMSEA <=.05	0.896
CFI	0.996
TLI	0.992
SRMR	0.019

2- Safer Sex Subjective Norms with Intention



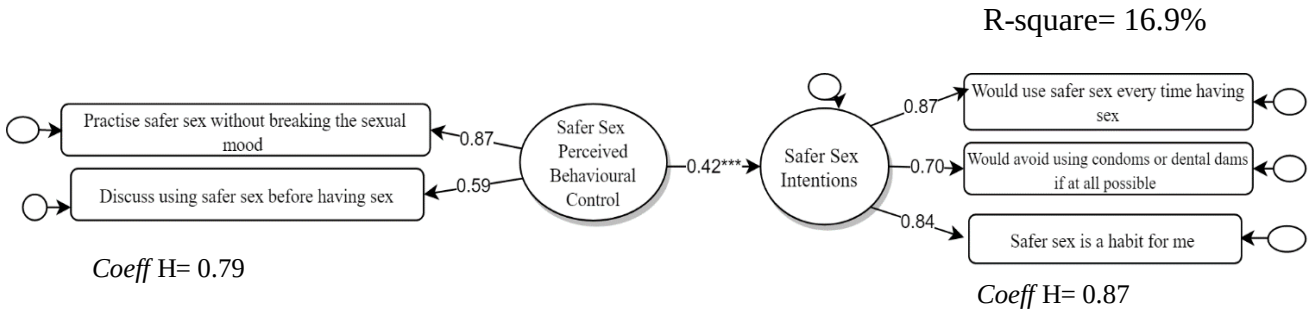
Coeff H= 0.74

Coeff H= 0.86

Fit Indices

χ^2 (8) = 8.66, *p=0.372*	
RMSEA	0.010
RMSEA 90C.I	0.000– 0.041
Probability RMSEA <=.05	0.989
CFI	1
TLI	0.999
SRMR	0.013

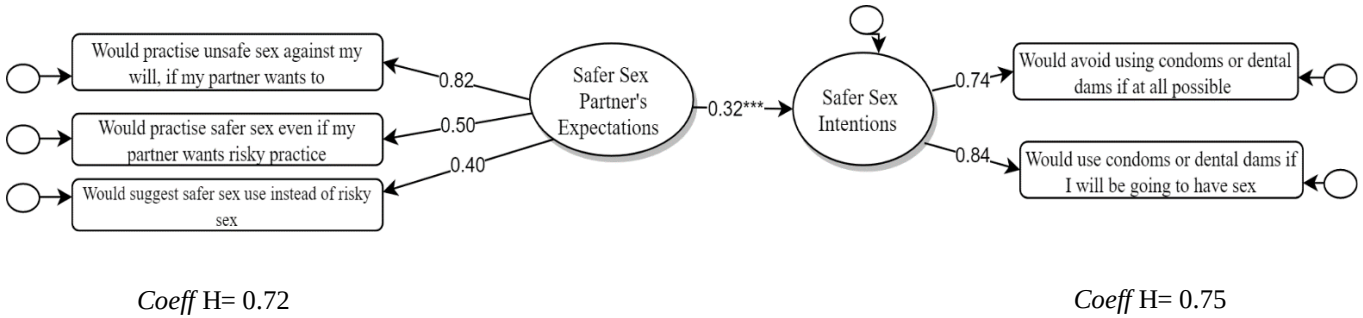
3- Safer Sex Perceived Behavioural Control with Intention



Fit Indices

χ^2 (4) = 3.65, *p=0.456*	
RMSEA	0.000
RMSEA 90C.I	
0.000– 0.0418	
Probability RMSEA	
<=.05	0.959
CFI	1
TLI	1
SRMR	0.008

4- Safer Sex Partner's Expectations with Intentions



Fit Indices

χ^2 (4) = 8.99, *p=0.061*	
RMSEA	0.037
RMSEA 90C.I	
0.000– 0.070	
Probability RMSEA	
<=.05	0.697
CFI	0.993
TLI	0.983
SRMR	0.021

5.4 Model 1: Proposed Intention for TPB Safer Sex Model

The first model to be tested was the TPB model which included testing the TPB antecedents, namely safer sex attitudes, subjective norms, and perceived behavioural control, on safer sex intentions.

As shown in Figure 5-4: Model 1, the results showed the TPB Safer Sex model had good fit indices and passed the chi-square test. The model R-square was 34.1%. Items "I would avoid using condoms/dental dams if at all possible" and "Safer sex is a habit for me" were excluded due to unsatisfactory absolute correlation residuals. This indicates that these items were not good indicators of safer sex intentions. Indicators of safer sex intentions were: "I would try to use a condom/dental dam when I had sex" and "If I were going to have sex in the next year, I would use condoms/dental dams".

As illustrated in Figure 5-4, the safer sex attitudes factor was a significant predictor, followed by subjective norms. However, safer sex perceived behavioural control was not found to be a significant predictor of safer sex intentions.

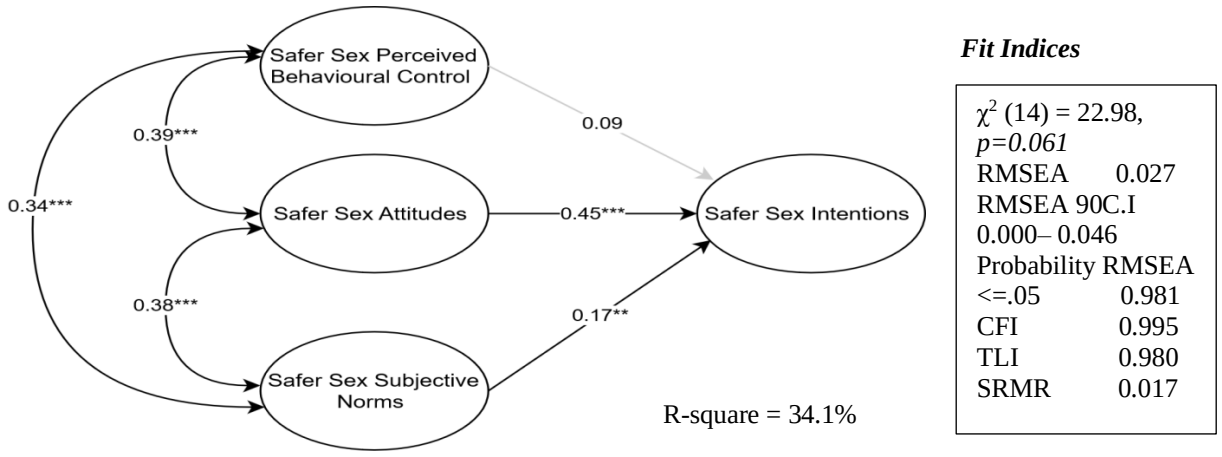


Figure 5-4: Model 1: Proposed Intention for TPB Safer Sex Model ***(figure reproduced with permission)***

5.5 Model 2: Proposed Intention for TPB Safer Sex Model with Behaviour

Safer sex behaviour was added to Model 1 and tested to see if safer sex intention would predict safer sex use. The outcomes of the regression analysis illustrated in Figure 5-5 showed that this model (Model 2 - TPB with behaviour) was a well-fitting model, although it did not pass the chi-square test. This could be due to the large sample size (n=911).

In this model, the attitudes to safer sex factor remained the strongest predictor of safer sex intentions, followed by subjective norms. Safer sex intentions significantly affected safer sex behaviour, showing that safer sex intentions predicted safer sex use. In this model, safer sex perceived behavioural control was found to be a significant predictor of safer sex intentions and safer sex behaviour. This suggests that young people with perceived control would be more likely to have safer sex intentions and practise safer sex. Model 2 explained 33 % of the variance of safer sex behaviour.

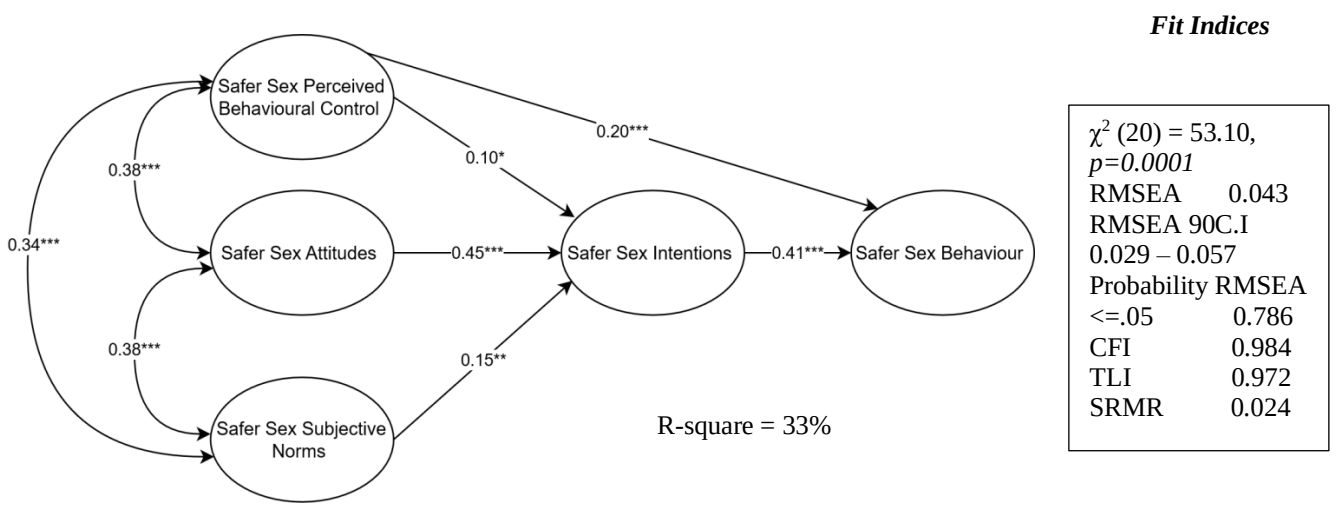


Figure 5-5: Model 2: Proposed Intention for TPB Safer Sex Model with Behaviour (*figure reproduced with permission)*. *Note: n=911, ***p<0.001, *p<0.001.*

The SEM analyses of Model 2 suggested that the significant predictors of intentions for safer sex were safer sex attitudes, subjective norms, and perceived behavioural control. In other words, South Australian young people who had positive attitudes towards safer sex, who had friends that encouraged them to practise safer sex and who had control over their safer sex intentions and behaviour were more likely to practise safer sex during their sexual activity.

However, Model 2 did not completely explain the variance of safer sex behaviour; instead, the TPB constructs explained only 33%. This suggests that other possible antecedents or background factors could be added to this model to explain safer sex use. To improve the TPB model, therefore, it was important to test possible theoretically identified factors as either background factors or antecedents. Given that age, religiosity, parent/carer–teenage communication, sexual status, partner's expectations, sex education, alcohol consumption, and illicit drug use were associated with safer sex practices, their roles were examined individually by adding each of them to the TPB model (Model 2). This addition was done to determine if they were useful antecedents or background factors that would improve the TPB model by contributing to the variance accounted for by the model. SEM analysis was then conducted on each individual model. Model 2 was considered as the base model against which the other models were compared. The upcoming models (Models 3–10) illustrate the SEM analysis for each individual model before all the significant antecedents and background factors were added together. The final model was named Safer Sex Use Extended TPB Model (SSUEM) (Model 11).

5.6 Proposed Intention for Safer Sex Extended TPB Model: Background Factors

The following sub-section illustrates the SEM analysis of the possible background factors that were worth testing in the SSEUM. Partner's expectations, sex education, alcohol consumption and religiosity were added individually to Model 2, and SEM analyses were conducted. These factors (partner's expectations, alcohol consumption, religiosity and sex education) were tested for their roles as possible background factors or antecedents. The outcome following this procedure found that only sex education was a poor predictor of safer sex practices. Therefore, it was excluded in the first instance of testing it in Model 2. However, the analyses revealed that partner's expectations, alcohol consumption and religiosity played a distal role in the intention to safer sex (Model 2) and were not considered possible antecedents of safer sex.

5.6.1 Model 3: Proposed Intention for Safer Sex Extended TPB Model by Testing Sex Education

When sex education was included in Model 2 as a background factor based on the suggested literature review (Figure 2-1), the regression analysis showed an adequate model fit (Figure 5-6), but the influence of sex education on the TPB construct was weak and non-significant. The R-square value was the same as in Model 2. The SEM analysis revealed that sex education was a non-significant predictor and should not be considered a possible background factor of safer sex intentions.

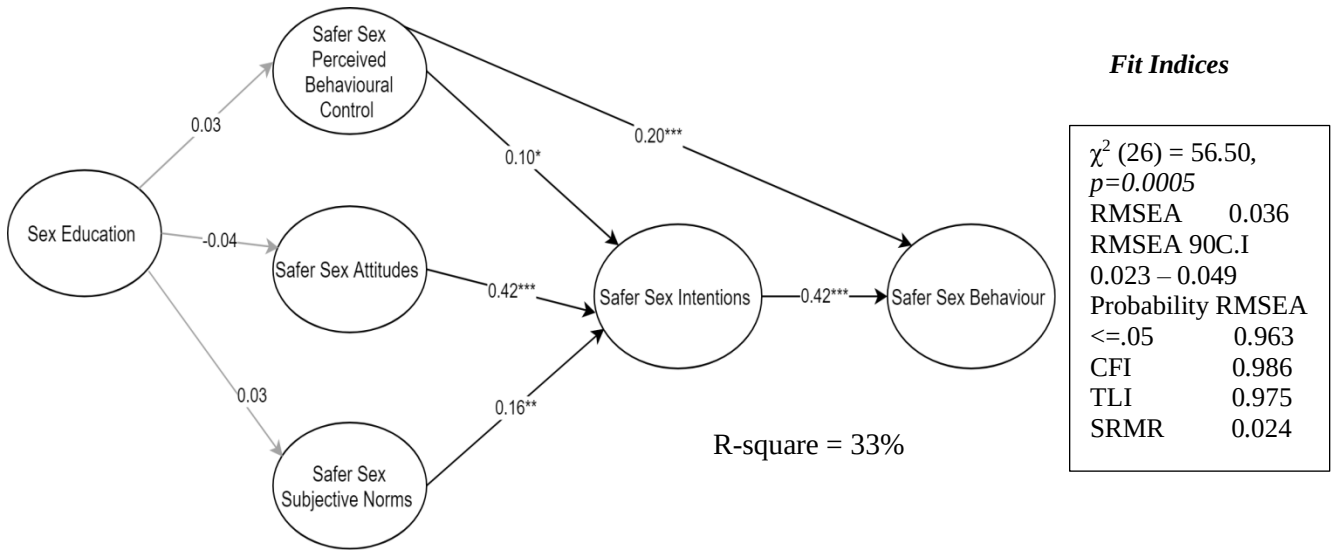


Figure 5-6: Model 3: Addition of Sex Education as a Background Factor to Safer Sex Intention (*figure reproduced with permission*). *Note:* n=911, **p<0.01, ***p<0.001

Sex education was then tested as a possible antecedent to the TPB model. The influence of sex education in this role was not found to be significant. The SEM analysis showed that the addition of sex education as an antecedent to Model 2 resulted in a model with good fit indices (χ^2 (28) = 56.92, p = 0.0010, RMSEA = 0.034, RMSEA 90 C.I. = 0.021 – 0.046, probability RMSEA <=.05 = 0.984, CFI = 0.986, TLI = 0.978, SRMR = 0.024). However, the regression coefficient with intention was not statistically significant (regression coefficient = 0.05, p >0.05). This suggested that the model should be rejected.

Therefore, the results of SEM analysis for sex education as either an antecedent or background factor suggested that sex education should be excluded from the final model.

5.6.2 **Model 4: Proposed Intention for Safer Sex Extended TPB Model by Testing Partner's Expectations**

The partner's expectations factor was added to Model 2 to test whether it acted as an antecedent or background factor to safer sex intentions. The addition of partner's expectations to the model as an antecedent as suggested by the reviewed literature (see Figure 2-1) showed good fit indices (χ^2 (33) = 93.67, p = 0.0000, RMSEA = 0.045, RMSEA 90 C.I. = 0.035 – 0.056, probability RMSEA <=.05 = 0.757, CFI = 0.975, TLI = 0.958, SRMR = 0.030). However, the regression coefficient of partner's expectations on safer sex intentions was weak and non-significant (Regression coefficient = -0.02, p>0.05), suggesting that partner's expectations did not play a significant role as a possible antecedent in the TPB model. As a result, the partner's expectations factor was tested as a background factor. When added to Model 2, the partner's expectations factor was a significant weak to a moderate predictor of safer sex attitudes, subjective norms and perceived behavioural control, with regression coefficients ranging from 0.31 and 0.56. As shown in Figure 5-7, Model 4 had good fit indices, suggesting that it should not be rejected even though it did not pass the chi-square test. In Model 4, the R-square value of 32.1% was lower than in Model 2. However, 31.5% of the variance in perceived behavioural control was associated with the partner's expectations. Model 2 also revealed that partner's expectations explained 1% of the variance in subjective norms and 23.8% of the variance in safer sex attitudes. These results suggested that the partner's expectations should be considered a background factor in the final model.

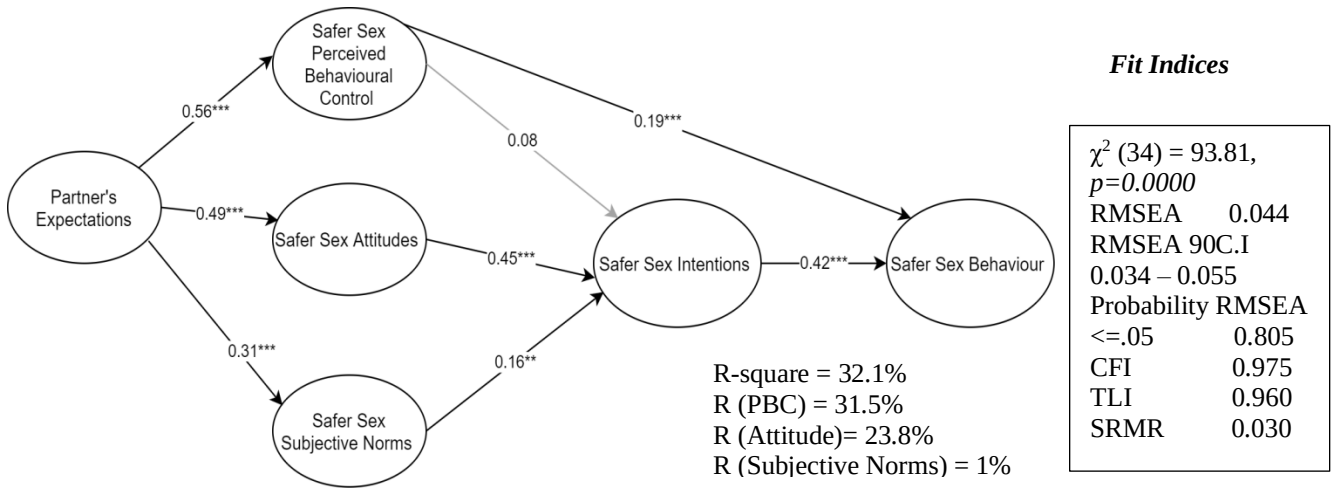


Figure 5-7: Model 4: Addition of Partner's Expectations as a Background Factor to Safer Sex Intention (*figure reproduced with permission)*. *Note:* n=911, **p<0.01, ***p<0.001

In Model 4, safer sex attitudes, subjective norms, and sexual status were significant predictors of safer sex intentions. While perceived behavioural control was a significant weak predictor of safer sex behaviour, the TPB constructs were weakly correlated. Model 4 suggests that young people's partner's expectations tended to have a weak to moderate influence on the TPB construct and were indirectly associated with safer sex intentions and behaviour. These results suggested that young people were more likely to have stronger perceived control, safer sex attitudes and subjective norms if the sexual partner had strong safer sex expectations. Based on partner's safer sex expectations, young people's safer sex intention and safer sex behaviour would be influenced. The respondent's partner's expectations' positive influence on safer sex intentions via the TPB constructs suggested that the partner's expectations should be added to the SSUEM as a background factor of safer sex intentions.

5.6.3 **Model 5: Proposed Intention for Safer Sex Extended TPB Model by Testing Alcohol Consumption**

Alcohol consumption was added to Model 2 as a possible antecedent to safer sex intentions. The addition of alcohol consumption showed good fit indices (χ^2 (27) = 78.97, p = 0.0000, RMSEA = 0.046, RMSEA 90 C.I. = 0.035 – 0.058, probability RMSEA <=.05 = 0.682, CFI = 0.976, TLI = 0.959, SRMR = 0.033). However, the regression coefficient of alcohol consumption on safer sex intentions was negative but very weak (Regression coefficient = -0.07, p <0.05). By contrast, alcohol consumption was a very weak positive significant predictor of safer sex behaviour with a regression coefficient equal to 0.086 (p<0.05). These contradictory effects suggested that the role of alcohol consumption was not clear. However, given the very weak relationship between intentions and behaviour, it was clear that its role as a possible antecedent to the TPB model was very unlikely. As a result, alcohol consumption was tested as a background factor. When added to Model 2, alcohol consumption was a significant weak to a moderate predictor of safer sex subjective norms and perceived behavioural control, with regression coefficients ranging from 0.10 and 0.20. As shown in Figure 5-8, Model 5 had good fit indices, suggesting that it should not be rejected even though it did not pass the chi-square test. In Model 5, the R-square value was the same as in Model 2. However, 0.5% of the variance in subjective norms was explained by alcohol consumption. These results suggested that alcohol consumption should be considered as a possible background factor in the final model.

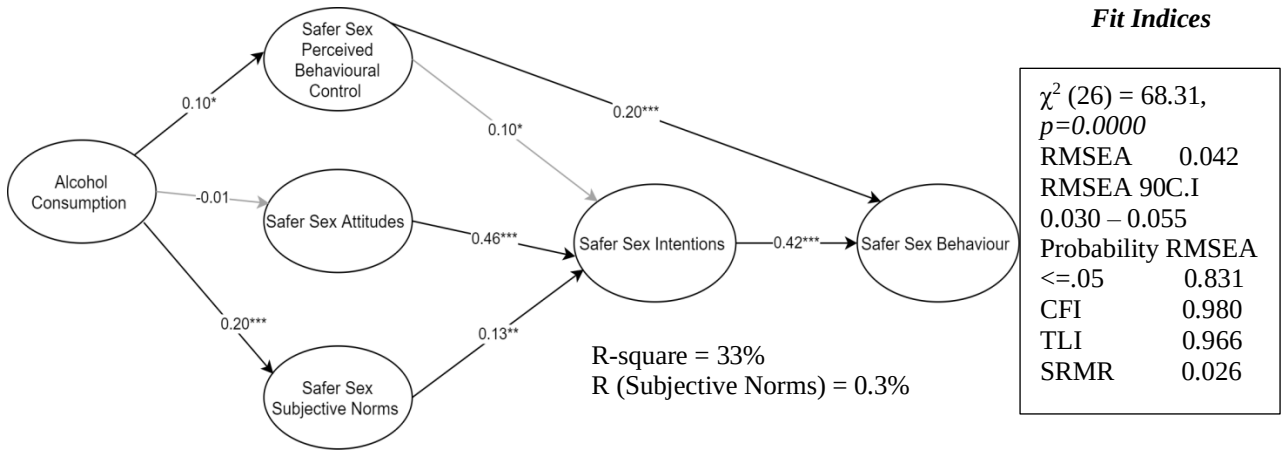


Figure 5-8: Model 5: Addition of Alcohol Consumption as a background factor to Safer Sex Intention (*figure reproduced with permission)*. *Note:* n=911, **p<0.01, ***p<0.001

Model 5 shows that alcohol consumption on safer sex intention was mediated by safer sex perceived behavioural control and subjective norms. These results suggested that young people who consumed alcohol would be more likely to have strong control over practising safer sex and would be more likely to have friends who would recommend safer sex practices. The results suggested that alcohol consumption should be added to the SSUEM as a possible background factor of safer sex intentions.

5.6.4 Model 6: Proposed Intention for Safer Sex Use Extended TPB Model by Adding Religiosity

The role of religiosity was considered next. Religiosity was first tested as a background factor. The fit indices indicated that the model fit the data well (χ^2 (26) = 58.84, p = 0.0002, RMSEA = 0.037, RMSEA 90 C.I. = 0.025 – 0.050, probability RMSEA <=.05 = 0.947, CFI = 0.984, TLI = 0.973, SRMR = 0.025) and should not be rejected (Figure 5-9). However,

religiosity as a background factor was statistically non-significant with any of the TPB constructs.

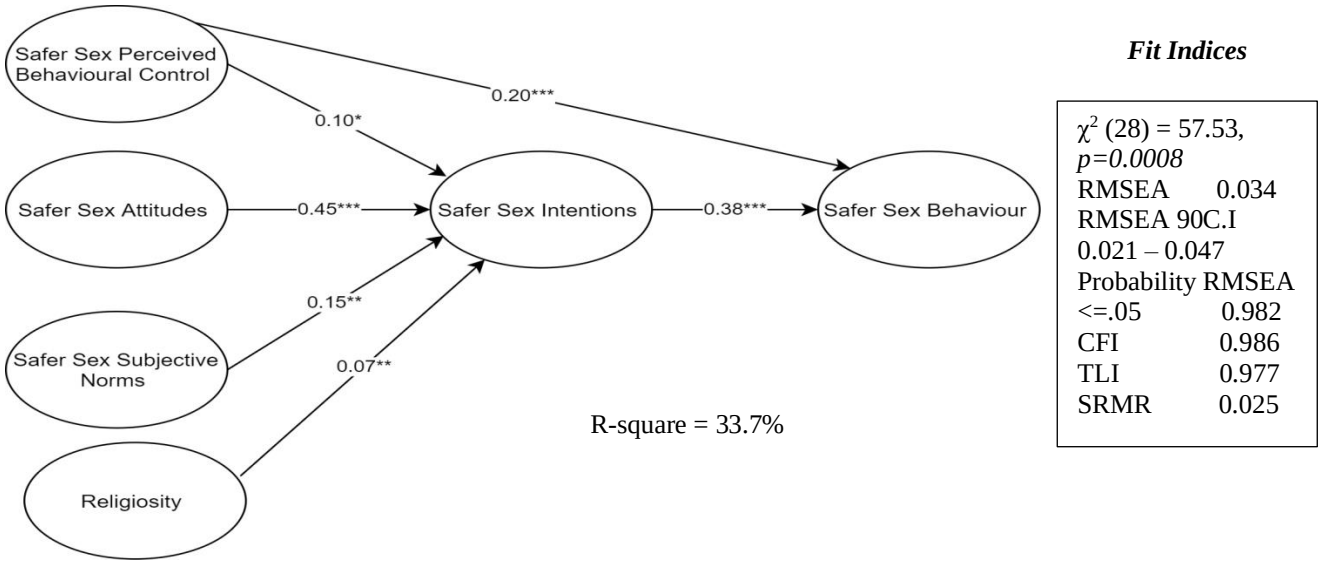


Figure 5-9: Model 6: Addition of Religiosity as an Antecedent to Safer Sex Intention *(figure reproduced with permission).* *Note:* n=911, *p<0.05, **p<0.01, ***p<0.001

Because of this, religiosity was next tested as a possible antecedent to the TPB safer sex model. Results of the SEM analysis revealed that religiosity was found to be a possible antecedent of safer sex intentions. The fit indices showed a well-fitting model (χ^2 (28) = 57.53, *p* = 0.0008, RMSEA = 0.034, RMSEA 90 C.I. = 0.021– 0.047, probability RMSEA <=.05 = 0.982, CFI = 0.986, TLI = 0.977, SRMR = 0.025) although, like previous models (i.e. Models 2 & 3) it did not pass the chi-square test. All the fit indices indicated that this model should not be rejected.

This model suggested that religious young people were more likely to have intentions to practise safer sex. The R-square of the model was only a slight improvement to Model 2, increasing from 33% to 33.7%. However, the weak effect of religiosity on safer sex intentions

(correlation coefficient = 0.07) suggested that religiosity does not play the role of an effective antecedent. This model was poor with religiosity as an antecedent.

These findings suggested that religiosity's effect on intentions might be mediated by antecedents other than the TPB constructs, and so religiosity was considered a background factor to test its association with the additional antecedents.

5.7 Proposed Intention for Safer Sex Use Extended TPB Model: Antecedents

This sub-section reports the factors, namely illicit drug use, parent/carer–teenage communication, sexual status, and age, that were considered as possible antecedents to safer sex intentions. Each factor was tested individually by adding it to the base Model 2. The following antecedents were found to be worth testing in the final model of SSUEM.

5.7.1 Model 7: Proposed Intention for Safer Sex Use Extended TPB Model by Testing Illicit Drug Use

The illicit drug use factor was added as a possible antecedent to safer sex intentions, and the SEM analysis revealed adequate fit indices (Figure 5-10). The findings provided evidence to suggest that illicit drug use plays the role of an antecedent in the TPB model that influences young people's safer sex intentions. The negative but weak relationship between illicit drug use and safer sex intentions suggested that young people who used illicit drugs were less likely to have strong intentions to practise safer sex in the future. The fit indices indicated that the proposed model with the illicit drug use factor could play the role of an additional antecedent to TPB. The model should not be rejected even though the model did not pass the chi-square test. However, the R-square value indicated an additional 1.2% of the variance of intentions of safer sex than the TPB Model 2. This increase in R-square was explained by this additional antecedent of 'illicit drug use'.

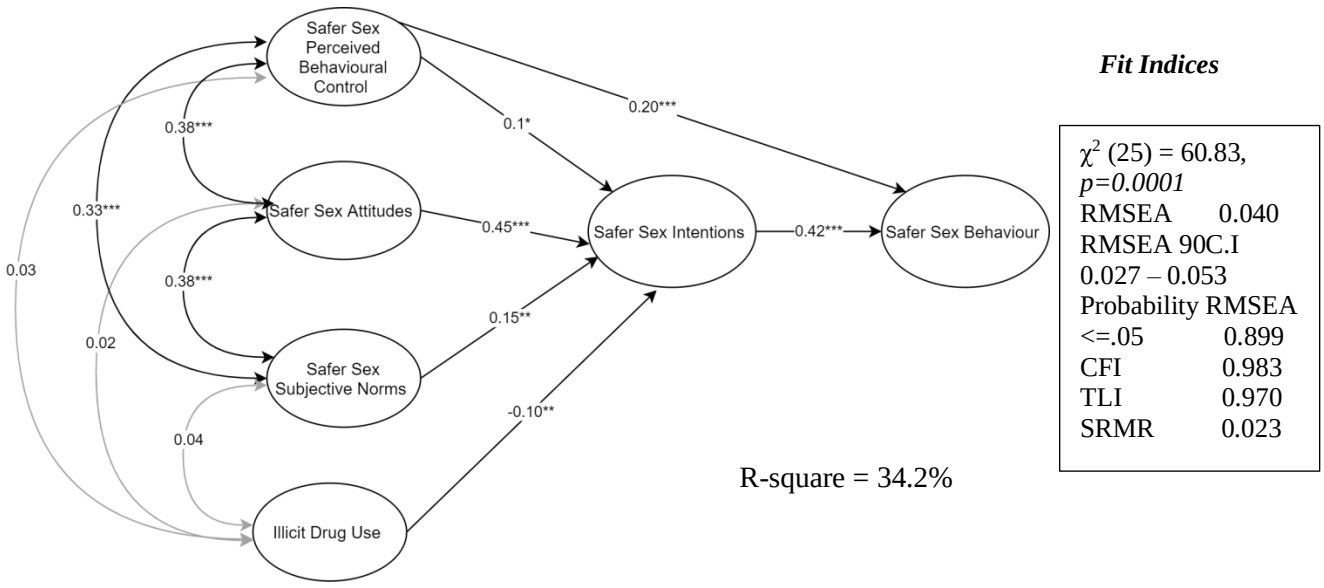


Figure 5-10: Model 7: Addition of Illicit Drug use as an Antecedent to Safer Sex Intention (*figure reproduced with permission*). *Note:* n=911, **p<0.01, ***p<0.001

To check the role of the illicit drug use factor, it was next added to Model 2 as a possible background factor. The regression analysis revealed adequate fit indices (χ^2 (26) = 69.58, p = 0.0000, RMSEA = 0.043, RMSEA 90 C.I. = 0.031 – 0.056, probability RMSEA <=.05 = 0.809, CFI = 0.979, TLI = 0.964, SRMR = 0.027). However, the effect of illicit drug use on TPB construct was weak and statistically non-significant. As a result, the model was rejected.

In sum, the analyses suggested that the illicit drug use factor was an influential antecedent factor in the model of safer sex intentions, so it was included as a possible antecedent in the final model.

5.7.2 **Model 8: Proposed Intention for Extended TPB Safer Sex Model by Testing the Role of the Parent/Carer–Teenage Communication**

In Model 8, the frequency of parent/carer–teenage communication on safer sex behaviour was examined in the TPB model to investigate whether it could be a possible antecedent or a background factor of safer sex intentions. When parent/carer–teenage communication was added to Model 2 as a possible background factor, as suggested by the reviewed literature (see Figure 2-1), the SEM analysis revealed poor fit indices (χ^2 (26) = 765.25, p = 0.0000, RMSEA = 0.178, RMSEA 90 C.I. = 0.167 – 0.188, probability RMSEA <=.05 = 0.000, CFI = 0.746, TLI = 0.560, SRMR = 0.084). As a result, the model was rejected.

When added to Model 2 as a possible antecedent, parent/carer–teenage communication frequency was a significant predictor of safer sex intentions and an even stronger predictor of safer sex behaviour. As shown in Figure 5-11, Model 8 had good fit indices, suggesting that it should not be rejected even though it did not pass the chi-square test. In Model 8, the R-square value of 38% indicated that the additional antecedent of the 'frequency of parent/carer–teenage communication' factor increased the explained variance by 5% and could be considered an additional antecedent in the model.

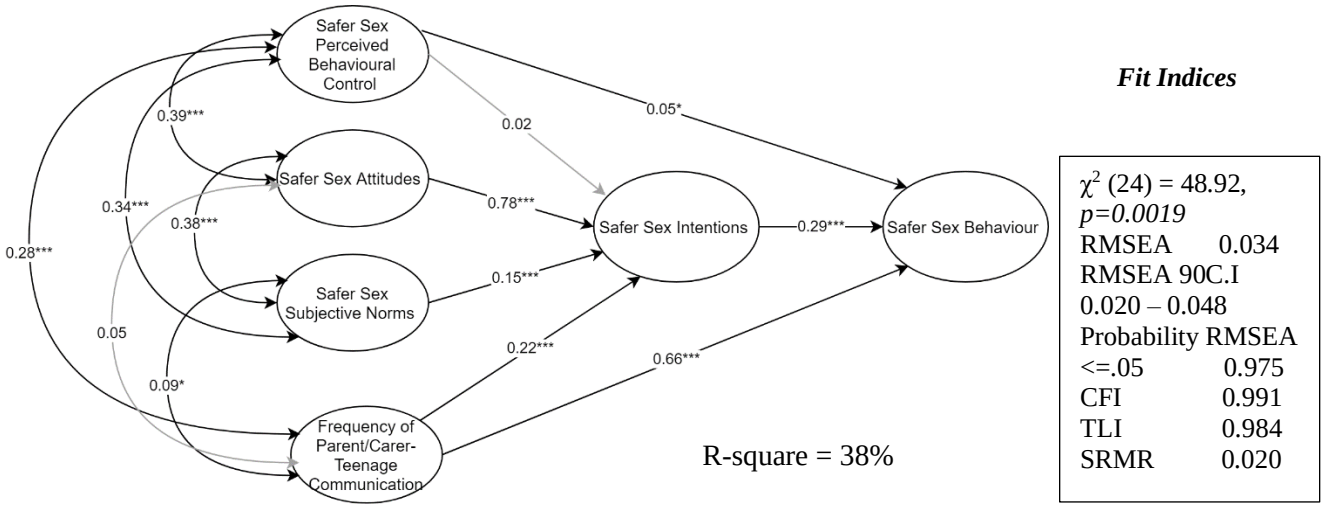


Figure 5-11: Model 8: Addition of Frequency of Parent/carer-teenage communication as an Antecedent to Safer Sex Intention (*figure reproduced with permission)*. *Note*: n=911, *p<0.05, **p<0.01, ***p<0.001.

Model 8 shows that safer sex attitudes, subjective norms, and parent/carer–teenage communication frequency were significant predictors of safer sex intentions. Safer sex behaviour was significantly predicted by safer sex intentions and the frequency of parent/carer–teenage communication, with PBC being a very weak predictor. The findings suggest that parents' and carers' safer sex communication with their children predicted young people's safer sex intentions and explained 44% of the variance of safer sex practices. In other words, young people who frequently had safer sex talks with their parents/carers had stronger safer sex intentions than those who did not. The results also revealed that the frequency of parent/carer–teenage communication about safer sex had a direct strong positive effect on safer sex behaviour. Thus, safer sex parent/carer–teenage communication was found to have a direct and indirect (through safer sex intentions) association with safer sex behaviour.

The findings suggested that young people with positive attitudes toward safer sex, who had people they cared about who thought it was important to use condoms or dental dams, and who had frequent parent/carer–teenage safer sex communication, were more likely to have intentions to practise safer sex with a sexual partner in the future. The results of Model 8 suggested that the parent/carer–teenage communication factor should be added to the final model as an antecedent.

5.7.3 Model 9: Proposed Intention for Extended TPB Safer Sex Model by Testing Sexual Status

Sexual status was added to Model 2 as a possible background factor based on the reviewed literature (see Figure 2-1); the SEM analysis revealed very poor fit indices (χ^2 (26) = 273.77, p = 0.0000, RMSEA = 0.103, RMSEA 90 C.I. = 0.092 – 0.114, probability RMSEA <=.05 = 0.000, CFI = 0.898, TLI = 0.824, SRMR = 0.050). As a result, the model was rejected.

Sexual status was then tested as an antecedent to safer sex intention (Model 9). The findings in Figure 5-12 provided evidence to suggest that sexual status plays the role of an antecedent in the TPB model and is directly associated with young people's safer sex intentions. There is a negative relationship between sexual status and safer sex intentions, suggesting that sexually inactive young people were more likely to have strong intentions to practise safer sex in the future. The fit indices indicated that the proposed Model 9 (Figure 5-12) with sexual status as an additional antecedent to TPB should not be rejected even though the model did not pass the chi-square test. However, the R-square value indicated that only 35.7% of the variance was accounted for to explain intentions to safer sex. An additional 2.7% of the variance than in TPB Model 2, was explained by the 'sexual status' factor as an additional antecedent. Nonetheless, it appeared to be an influential factor in the model of safer sex intentions.

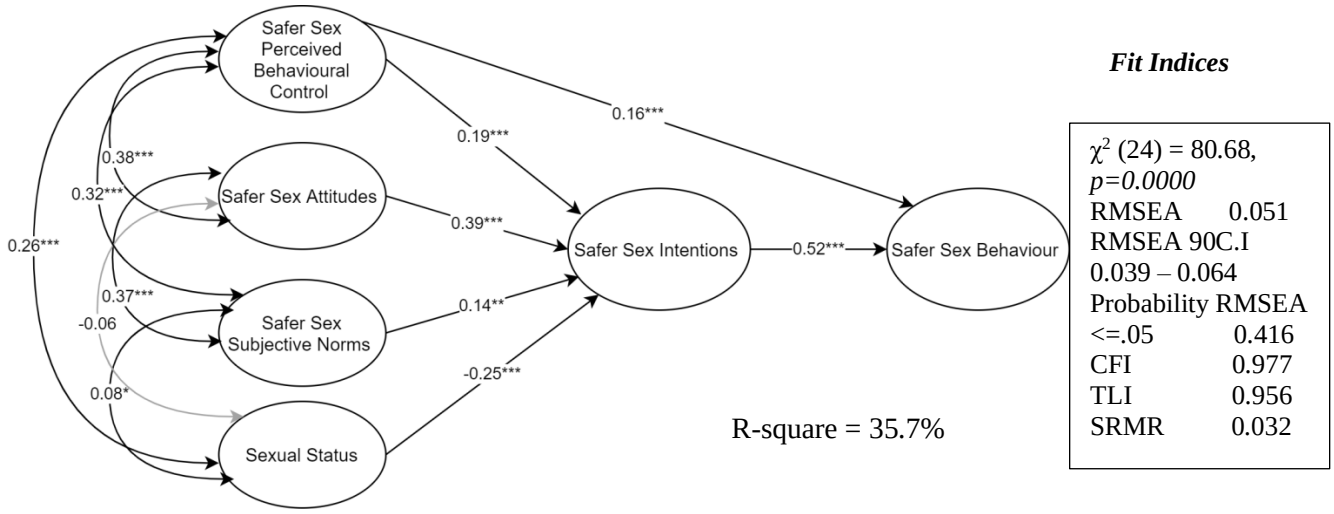


Figure 5-12: Model 9: Addition of Sexual Status as an Antecedent Factor to Safer Sex Intention (*figure reproduced with permission)*. *Note:* n=911, **p<0.01, ***p<0.001

In this Model 9, safer sex attitudes, subjective norms, perceived behavioural control, and sexual status were significant predictors of safer sex intentions, while perceived behavioural control was also a significant predictor of safer sex behaviour. Model 9 suggests that sexually inactive young people were more likely to practise safer sex when engaging in future sexual activity. The respondent's sexual status negatively influenced safer sex intentions, suggesting that sexual status should be added to the SSUEM as a possible antecedent of safer sex intentions.

5.7.4 Model 10: Proposed Intention for Extended TPB Safer Sex Model by Adding Age

Age was the next variable that was tested in Model 10. To identify the role of age on safer sex behaviour, it was first tested as a background factor and then as an antecedent. The influence of age was not found to play a significant role as a background factor. This model had poor fit indices (χ^2 (26) = 93.98, p = 0.0000, RMSEA = 0.054, RMSEA 90 C.I. = 0.042 – 0.066,

probability RMSEA <=.05 = 0.277, CFI = 0.969, TLI = 0.946, SRMR = 0.033). However, when age was included in the model as an antecedent, the regression analysis showed an adequate model fit (Figure 5-13). In Model 10, age was found to be inversely related to safer sex behaviour. In other words, older people were less likely to report that they engaged in safer sex practices, although this relationship was weak (correlation coefficient = -0.12). However, this Model 10 did not pass the chi-square test, which could be attributed to the sensitivity of chi-square to large sample sizes. However, all the fit indices indicated that this model should not be rejected.

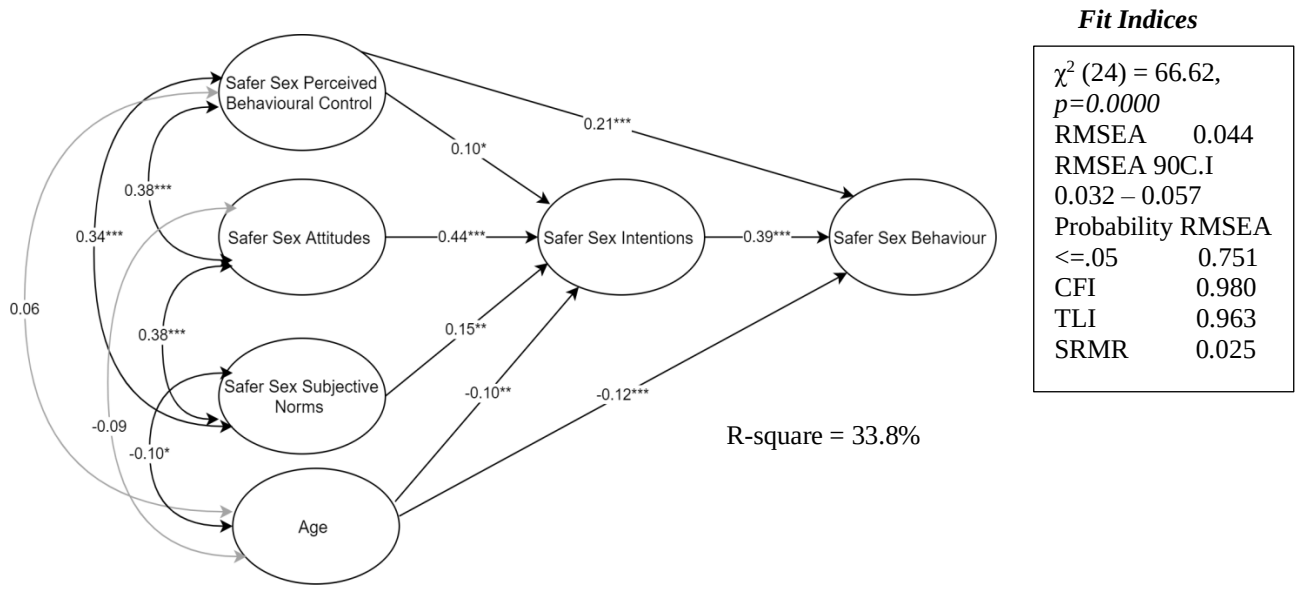


Figure 5-13: Model 10: Addition of Age as an Antecedent to Safer Sex Intention (*figure reproduced with permission)*. *Note:* n=911, *p<0.05,**p<0.01, ***p<0.001

Model 10 suggests that intentions for safer sex were less likely among older respondents. Age also had a negative and significant direct effect on safer sex behaviour. In other words, practising safer sex was more likely to decrease with age. The R-square of Model 10 to safer sex intention was improved slightly from 33% to 33.8%. This slight increase in R-square was

insufficient to suggest that age was a statistically significant antecedent of safe sex intentions. However, age was weakly associated with subjective norms, and thus a decision was made to add the age factor to the final model for testing.

5.8 Model 11: Safer Sex Use Extended TPB Model (SSUEM)

The effects of sexual status, risky partner's expectations, parent/carer–teenage communication, consumption of alcohol, age, illicit drug use and religiosity were all added to the Extended TPB model and tested for how well they fit the observed data. Sex education was excluded from SSUEM based on the SEM analysis discussed in Section 5.6.1. The results had revealed that sex education was found neither as a background factor nor an antecedent to safer sex intention when added to Model 2. This suggested that sex education was not important in predicting safer sex intentions among young people and should not be included in the final model (SSUEM).

All possible antecedents (sexual status, parent/carer–teenage communication, age, illicit drug use) and background factors (risky partner's expectations, consumption of alcohol, and religiosity) were added to the TPB model (Model 2). The first SEM analysis of the safer sex use extended model (SSUEM) showed that illicit drug use did not have any significant effect on safer sex intentions, with a regression coefficient equal to -0.06 (p>0.05). This indicated that illicit drug use did not predict safer sex intentions. Illicit drug use was, therefore, dropped from the final model.

Moreover, the effect of participant's age as an additional antecedent was weak on safer sex use (regression coefficient = -0.05, $p < 0.05$) and non-significant with safer sex intention (regression coefficient = -0.05, $p > 0.05$). This suggested that age should not be included as a

possible antecedent to safer sex intentions. As a result, age was also excluded from the final model.

Subsequently, non-significant paths were also excluded from the SSUEM. For example, alcohol consumption was found statistically non-significant with safer sex attitudes and perceived behavioural control, and religiosity was not associated with all the TPB constructs.

In the final model, only sexual status, risky partner's expectations, parent/carer–teenage communication, consumption of alcohol, and religiosity were added to Model 2. The final model was called the Safer Sex Use Extended Model (SSUEM). The findings of this proposed model (shown below in Figure 5-14) indicated that risky partner's expectations, religiosity and consumption of alcohol were factors that acted as significant background variables to the antecedents of safer sex intentions (i.e. attitudes, subjective norms and PBC) in the SSUEM. Sexual status and the frequency of parent/carer–teenage safer sex communication were found to be significant antecedents of safer sex intentions in addition to the TPB constructs.

As shown in Figure 5-14, the SSUEM model demonstrated a good fit with the data. In this Model 11, 45.8 % of the variance in safer sex intentions was associated with the TPB constructs, namely attitudes, subjective norms, and perceived behavioural control, and the additional antecedents "parent/carer–teenage communication" and "sexual status", with "partner's expectations", "alcohol consumption" and "religiosity" as background factors. Over one-third (35.6%) of the variance in perceived behavioural control was associated with the partner's expectations and alcohol consumption. The final model also revealed that 1% of the variance in subjective norms was linked to partner's expectations and alcohol consumption, while 22.4% of the variance in safer sex attitudes was associated with partner's expectations. These results indicate a moderate to strong association between partner's expectations and the

TPB constructs. Alcohol consumption was found to be weakly associated with safer sex subjective norms, while religiosity was found to be weakly associated with sexual status.

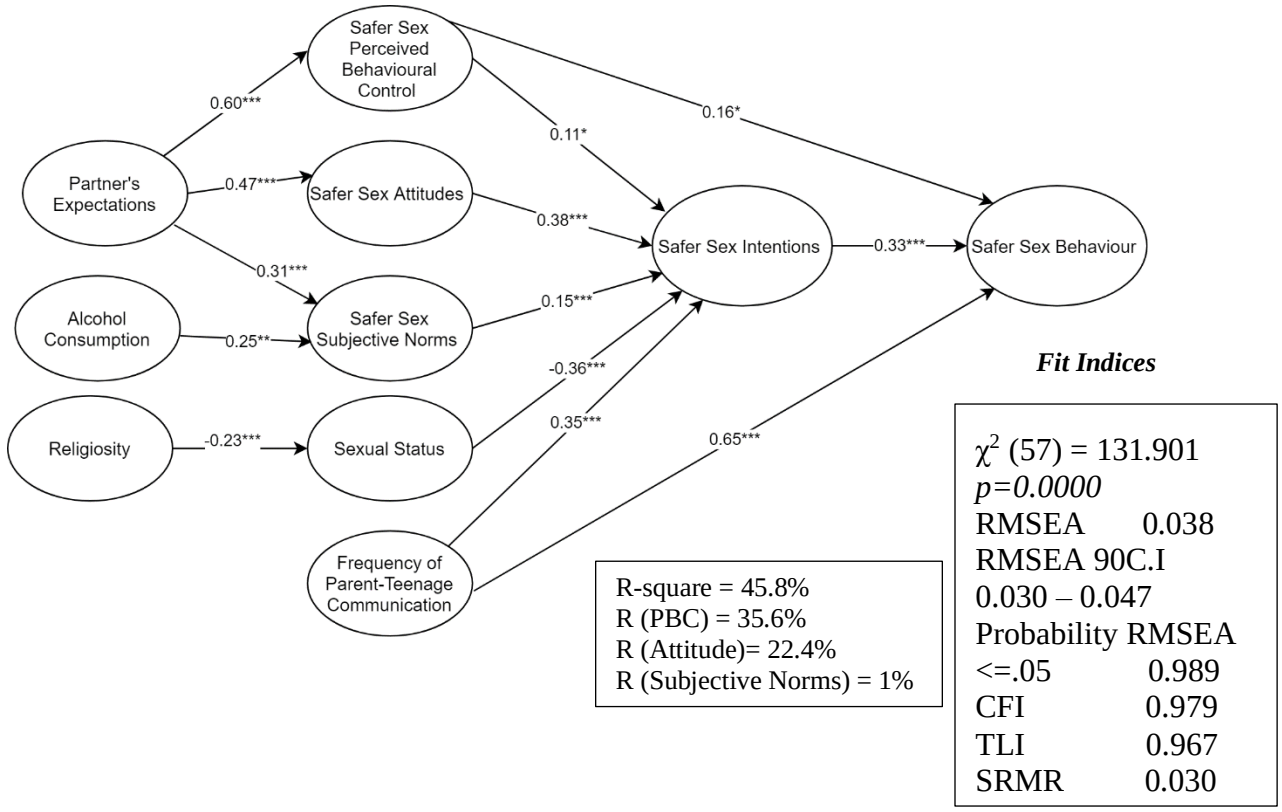


Figure 5-14: Final Safer Sex Use Extended Theory of Planned Behaviour (TPB) Model (SSUEM) *(figure reproduced with permission).*

Note: n=911, *p<0.05, **p<0.01, ***p<0.001*; only significant paths are included in the model.*

Table 5-7 presents the correlation matrix between the TPB constructs and the additional antecedents of safer sex intention. The correlation matrix revealed a weak association between the TPB constructs and the additional antecedents. However, no significant association was found between parent/carer–teenage communication and safer sex attitudes, and between sexual status and subjective norms.

Table 5-7: SSUEM: Latent Factor Correlations (standardised)

	Attitudes	Subjective Norms	Perceived Control	Parent/carer-teenage communication	Sexual Status
Attitudes	1				
Subjective Norms	0.27***	1			
Perceived Control	0.15*	0.21***	1		
Parent/carer–teenage communication	0.03	0.1*	0.30***	1	
Sexual Status	-0.11*	0.1	0.36***	0.41***	1

Note: ***$p<0.0001$. *$p<0.05$

The findings in Figure 5-14 provided evidence to suggest that sexual status plays the role of an antecedent negatively influencing young people's safer sex intentions. In other words, Model 11 revealed that sexually inactive young people would practise safer sex use in the future compared to sexually active young people who would be more likely to engage in unsafe sex.

The individual's religiosity predicted sexual status. The findings suggested that the effect of religiosity on young people's safer sex intentions was affected by an individual's sexual status, wherein religious people were more likely to be sexually inactive but had intentions to use safer sex in the future.

The frequency of parent/carer–teenage safer sex communication played a role as an antecedent to safer sex intention and was also a predictor of safer sex behaviour. The parent/carer–teenage communication effect on safer sex was positively and significantly associated with safer sex use through direct and indirect relationships; the indirect association was affected by safer sex intentions. Parent/carer–teenage communication was found to be the

strongest positive predictor of safer sex behaviour, which suggests that it is highly important that parents initiate safer sex communication with their children.

The data provided evidence that partner's expectations played a distal role in predicting young people's safer sex intentions. The results showed that a partner's expectations positively predicted young people's safer sex attitudes, subjective norms and, in particular, perceived behavioural control. The findings suggested that the constructs of TPB, safer sex attitudes, subjective norms, and perceived behavioural control positively mediated the influence of the partner's expectations on young people's safer sex intentions. Thus, partner's expectations predict safer sex use intentions, indirectly via influencing one's safer sex attitudes, subjective norms, and perceived behavioural control. In other words, for young people to have strong intentions to practise safer sex, it is important that their sexual partner has similar safer sex expectations. Subsequently, partner's expectations would positively influence their sexual partner's safer sex attitudes, subjective norms, and perceived behavioural control.

The findings also provided evidence to suggest that alcohol consumption plays the role of a background factor that influences subjective norms. The effect of alcohol consumption, however, was very weak. These findings indicated that safer sex subjective norms and perceived behavioural control would positively mediate the influence of alcohol consumption on young people's safer sex intentions. The results suggested that young people who consumed alcohol were more likely to agree with their friends that it is important to use condoms or dental dams during sexual activity.

Overall, the safer sex attitudes factor was found to be the strongest predictor of safer sex intentions, while safer sex behaviour was positively and strongly predicted by the frequency of parent/carer–teenage communication, followed by safer sex intentions. Notably, PBC had a

weak direct effect on safer sex behaviour. Similarly, safer sex intention was a weak predictor of safer sex behaviour.

In sum, these findings have suggested that the Safer Sex Use Extended Model (SSUEM) is a well-fitting model to explain young people's safer sex behaviour. The findings indicated that significant predictors of safer sex intentions were attitudes, subjective norms, perceived control, sexual status, and the frequency of parent/carer–teenage safer sex communication. In other words, young people who had positive attitudes towards safer sex use, who had friends or family who suggested safer sex use, who felt agency and behavioural control in safer sex use, who experienced a high frequency of parent/carer–teenage safer sex communication, and who were less sexually active, were more likely to practise safer sex behaviour. The implication of these results is that parent/carer–teenage safer sex communication is more important than any other factors considered in this study to predict safer sex behaviour.

5.9 **Summary**

The SEM results showed that the proposed model SSUEM provided adequate evidence to support the proposition that the TPB model constructs (attitudes, perceived control, and subjective norms) predict safer sex intentions and safer sex behaviour. The research found that young people's sexual status and frequency of parent/carer–teenage communication were significant additional antecedents to safer sex intentions. Partner's expectations, religiosity, and alcohol consumption were background factors to safer sex intentions. They were associated with the TPB antecedents (attitudes, subjective norms, and perceived behavioural control) of safer sex intentions.

Overall, the final extended model of the Theory of Planned Behaviour, SSUEM, provided evidence to support the notion that safer sex attitudes, subjective norms, perceived behavioural

control, young people's sexual status, and frequency of parent/carer–teenage communication were significant predictors of young people's safer sex intentions. Furthermore, safer sex attitudes, subjective norms, and perceived behavioural control were positively influenced by the partner's expectations to engage in safer sex behaviour. Young people's subjective norms positively mediated alcohol consumption on young people's intentions for safer sex use, while religiosity negatively influenced a person's sexual status.

The next chapter (Chapter 6) discusses the study findings of Chapter 5 to show the significance of the main study findings and their implications, and to answer the research questions listed earlier in Chapter 2. Chapter 6 discusses the factors excluded from the SSUEM, then the retained factors to extend the Theory of Planned Behaviour. The TPB model is the first model to be discussed in Chapter 6 since it formed the main conceptual framework for this study. The discussion of the TPB Model is followed by discussing the other factors that were found as possible predictors to safer sex behaviour and worthy of adding to the SSEUM. Chapter 6 also presents how these findings could be used to design and develop a safer sex intervention suitable for young people living in South Australia. The strength and limitations of this study are also reported.

6- DISCUSSION

Prompted by high rates of STIs and unplanned pregnancy notifications, this research sought to identify predictors of safer sex intentions and practices among young people in SA using the TPB framework. This research aimed to inform health investigators about factors that should be considered for possible safer sex interventions to increase rates of consistent safer sex use among South Australian young people aged between 18–24 years. Based on the TPB, it was anticipated that, in addition to attitudes, subjective norms, and perceived behavioural control, additional factors should be added to the TPB model as antecedents to improve the predictability of safer sex practices. Of the factors (e.g. alcohol consumption, and partner's expectations) identified from the research literature as possible antecedents, only parent/carer–teenage communication and sexual status were found to play this proximal role. Other factors, such as alcohol consumptions, partner's expectations, religiosity, and sex education, were found to play a more distal role or were insignificant in the final extended TPB model for safer sex practices.

The results revealed that parent/carer–teenage communication was the most important predictor of safer sex use among young people in SA. In addition to being mediated by safer sex intentions, parent/carer–teenage communication was also directly and strongly associated with safer sex practices. The study findings showed that young people who had frequent safer sex communication with their parents/carers either before or after being sexually active were more likely to practise safer sex with their sexual partner. However, it is important to note that young adult females who dominated this study had experienced parent/carer–teenage communication.

A second antecedent, sexual status, was also found to be a significant predictor of intentions for safer sex practices. Overall, the final model proposed in this research, the Safer Sex Use Extended Model (SSUEM), provided evidence to suggest that sexual status is not absent from the predictive equation of safer sex intentions. Instead, sexual status plays a proximal role as an antecedent factor predicting safer sex intentions and safer sex behaviour.

Aside from the additional antecedents, the data showed that the TPB constructs predicted the likelihood of safer sex use. However, the overall predictive power of the TPB construct of safer sex attitudes was not as strong as the direct effect of parent/carer–teenage communication on safer sex behaviour.

6.1 **Parent/Carer–Teenage Communication**

The frequency of parent/carer–teenage communication was positively and strongly associated with safer sex intentions and safer sex behaviour. The study findings revealed that parent/carer–teenage communication was the third strongest predictor of safer sex intentions in the SSUEM after safer sex attitudes and sexual status. As previously stated, parent/carer–teenage communication was the strongest predictor of safer sex behaviour. These findings are consistent with results from other studies, such as DiClemente et al. (2001), Hutchinson (2002) and Atienzo, Walker, Campero, Lamadrid-Figueroa, and Gutiérrez (2009), that showed positive parent/carer–teenage communication could significantly influence young people's safer sex practices. The researchers also revealed that partner/carer–teenage communication could also influence safer sex preparatory behaviour, such as purchasing condoms and negotiation skills about their use with a sexual partner. Scheibe et al. (2016) have suggested that parent/carer

sexual health communication provides the young people involved with the emotional strength to practise safer sex during their early relationships and, in particular, at the beginning of a relationship with a new sexual partner. Brüll et al. (2016) have also suggested that parental monitoring is associated with increasing safer sex use intentions during the first sexual intercourse encounter and asking the sexual partner about their health status.

However, research suggests parents' religious beliefs would shape parental communication patterns (Regnerus, 2005). In other words, it is less likely that young people from religious families would have open communication with their parents about sexual health issues. Regnerus (2005) indicated that religious parents/carers tended to avoid discussing safer sex topics with their children. However, within religious families, parent/carer communication would primarily focus on moral conservation about young people's sexuality.

Gender differences in parent/carer–teenage communication were found by Measor (2004) (2004). Parent/carer–teenage communication was mostly initiated with daughters and less with sons, with the mother playing the primary role of a sexual health educator. The research also found that young males felt uncomfortable and embarrassed when their parents initiated a sexual conversation with them. Johnson et al. (2016) also found that females felt more comfortable discussing sexual issues with their mothers. Future studies could investigate how male communication with parents could be increased and be more comfortable for both parents. Also, future research could investigate how to overcome the barriers that prevent son–parent safer sex communication.

Nonetheless, the study findings provide strong evidence to support the importance of open sexual health communication between parents/carer and their teenagers regardless of their

sexual identity. These findings suggest that safer sex intervention programs should focus on parent/carer–teenage communication. Sexual health investigators should not ignore the frequency of parent/carer–teenage communication when designing any safer sex intervention that promotes consistent safer sex use. Strengthening parent/carer–teenage communication should be the primary target. However, it is important to note that young adult women dominated this study; thus, as a future recommendation, any future intervention based on this actual study will be effective if young adult women are targeted. In addition, young people from families with low parent/carer–teenage sexual communication should, in particular, be the target group for any future safer sex intervention and health promotion programmes. It is essential to strengthen parent/carer–teenage communication as it would encourage safer sex use among young people, especially young adult women. Parents should also be aware that this type of sexual health communication may be protective against their children engaging in risky sexual behaviours.

Noteworthy is that young people prefer their parents to be the best source of information (Whitaker & Miller, 2000). In their study, Whitaker and Miller (2000) revealed that a lack of parent/carer–teenage communication would turn young people to their peers. They found that frequent parent communication was associated with less risky sexual behaviour, less conformity to peer norms, and a greater belief that parents provided the most helpful information about sex. On the contrary, Regnerus (2005) noted that religious affiliation and religiosity shaped parent/carer communication patterns such as the frequency of communication and whether to talk about sex or birth control. Therefore, it is important for any future intervention to acknowledge the faith of the parents/carers and to provide parents/carers with communication

skills and knowledge about their fundamental role in protecting their children from engaging in risky sexual behaviours.

6.2 **Sexual Status**

Evidence to suggest a negative association between sexual status and intentions to safer sex use was also revealed in this study. Sexual status was the second strongest predictor of safer sex intentions after safer sex attitudes in the SSUEM. The findings suggest that people who are not involved in sex intend to practise safer sex when they have sex. These findings are consistent with a study conducted by Nguyen et al. (1996). The latter found that sexually inactive male adolescents, due to being in less committed relationships, had greater intentions to use condoms. However, due to being in a stable relationship, sexually active respondents preferred contraceptive pills. Furthermore, in their study, Nguyen et al. (1996) found that safer sex use was higher among younger adolescents than older ones, similar to the results revealed in this study.

In this study, sexually inactive young people were more likely to be younger than sexually active people. This finding suggests that practising safer sex was more likely to decrease with age, especially as the likelihood of having sex increased with age (Nguyen et al., 1996). The findings showed that practising safer sex was a behaviour that was strongly linked to an individual's sexual activity status as to whether they had been sexually active or not previously. A possible explanation of how sexual status might operate is that sexually inactive participants are more likely to have intentions to practise safer sex in the future, such as having sex especially with a casual partner. Practising safer sex would prevent the acquisition of STIs and unplanned pregnancy, especially in non-committed relationships. Further research would,

however, be required to expand our knowledge regarding the factors that might interfere with the "Intention–behaviour gap", such as a partner's expectations might prevent safer sex use.

In this research, young people's age was seen as a weak but significant predictor of actual safer sex behaviour. In other words, using safer sex was a behaviour motivated by young people in their early adulthood. A possible explanation of how age might operate is that young participants are more likely to practise safer sex if they engage in a risky situation, such as having sex with a casual partner. However, other contraceptive methods, such as contraceptive pills, could be used when their relationship tends to be steady. According to Wang (2013a), this switch is likely to occur after a relationship is well established through trust, commitment, and an increase in intimacy and pleasure. This accords with other research conducted by Flood (2003) that found trust during a relationship prevented consistency and continuity of condom use.

6.3 **Religiosity**

As had been theorised, the findings showed that religiosity predicted an individual's sexual status. The results suggested that it is less likely for young people with a religious affiliation to engage in sexual activity. Thus, it is more likely that sexual abstinence is practised. This research provides evidence to suggest that sexual status mediated the effect of religiosity on safer sex intentions and safer sex behaviour. Religiosity functioned as a weak distal factor to safer sex intentions. These findings suggested that religiosity was an underlying factor in encouraging young people to practise safer sex in the future.

Research conducted by Zaleski and Schiaffino (2000) revealed that religiosity is a protective buffer for young people in delaying their engagement in sexual activity before getting married. Religiosity was found to be negatively related to sexual activity (Zaleski & Schiaffino, 2000). However, Brown (2015) has shown that the reason for consistent condom use among young people, beyond their desire to avoid pregnancy, was due to the impact of having to decide on abortion if faced with an unwanted pregnancy. Brown (2015) suggested that young people also believe that abortion has more significant moral implications than STIs as many of these STIs can be cured by taking antibiotics. Arguably, this moral panic regarding abortion is likely to be related to an individual's religious beliefs. Most religions contain conservative groups who are highly critical of abortion (Fehring, 2008; Koenig, 2004). Thus, engaging in a sexual activity without practising safer sex can be driven by negative consequences such as unplanned pregnancy being associated with having abortion (Regushevskaya, et al., 2009). Munakampe, Zulu, & Michelo (2018) found in their research that abortion was seen as a sin especially by religious adolescents. This suggests that young people who are sexually inactive would practise safer sex in the future to prevent facing an unplanned pregnancy and abortion decisions that could be against their religious beliefs.

Findings from this research revealed that the influence of religiosity on safer sex intention was minimal and less critical than the other background factors. However, religiosity should not be ignored in any possible intervention that aims to increase the rate of consistent safer sex use. Any future intervention could use religiosity as a motivation factor to promote safer sex practices among young people. Non-religious young people should also be the target of any future intervention to promote consistent safer sex use.

The results suggest that future interventions designed to promote consistent safer sex use should consider incorporating the influences that religiosity and sexual status have on safer sex behaviour. Programs aimed at reducing the rates of STIs and unplanned pregnancy in young people need to take these study findings (religiosity–sexual status–age association) into consideration when targeting sub-groups. Older younger people, who are less religious and are sexually active, should be the target group for any future safer sex intervention due to their high sexual activity. A closer focus on this sub-group seems to be important when aiming to promote safer sex use. It is important to note that religious affiliations promote abstinence while the non-religious sub-groups will be more vulnerable to engaging in risky sexual behaviours. Therefore, different intervention programs are necessary and should be directed at acknowledging young people's age, sexual status, and religious affiliation.

6.4 The TPB Model for Safer Sex

The results of this research supported the applicability of the TPB in the study of safer sex use among South Australian young people. The research findings revealed that the TPB model still had significant predictive power for intentions to practise safer sex. Consistent with the TPB model, safer sex intentions significantly predicted safer sex behaviour, even with a weak but acceptable effect. The three constructs of the TPB, namely safer sex attitudes, subjective norms, and perceived behavioural control, were predictors of safer sex intentions. In other words, attitudes towards safer sex use, what friends and relatives think about safer sex use, the agency, self-efficacy and control perceived to practise safer sex, predicted the likelihood of intentions to practise safer sex. These findings add to the growing body of literature supporting

the usefulness of TPB in understanding a portion of the variance in human behaviour, such as safer sex.

A very early study by Reinecke et al. (1996) found that TPB constructs accounted for 30% of the variance in explaining condom use, and this substantial portion is still considered an acceptable magnitude. The addition of the proposed antecedents, namely sexual status and parent/carer–teenage communication and the background factors to the TPB model, increased the explained variance to 45.8%. It is, therefore, important to note that while these three antecedents of safer sex intentions, namely attitudes, subjective norms, and perceived behavioural control, play a proximal role in predicting South Australian young people's safer sex intentions, the frequency of parent/carer–teenage communication and sexual status were also found to matter in explaining safer sex intentions.

This research provides evidence that it is important to consider the TPB constructs when designing behaviour change interventions and to focus primarily on strengthening safer sex attitudes, which was the strongest predictor in the TPB model. The findings also provided evidence that perceived behavioural control was a significant weak predictor of this actual behaviour. This suggests that strategies to provide condoms or dental dams and show people how to use them may not be the most effective way to promote safer sex behaviour. However, the factors identified in this research would influence safer sex behaviour and should be taken into consideration, such as parent/carer–teenage communication.

The safer sex attitudes factor was found to be the strongest predictor of safer sex intentions in the TPB model. These findings were not unexpected as similar results have been reported by Guo et al. (2014) and Protogerou et al. (2013). In their studies, Guo et al. (2014) and

Protogerou et al. (2013) revealed that the safer sex attitudes factor was the strongest of the TPB constructs to predict safer sex use. This shows that it is important to identify young people's attitudes to safer sex, for example, "condoms/dental dams interfere with romance" and "people can get the same pleasure from "safer" sex as from unprotected sex". Thus, any future intervention to change a safer sex attitude requires changing young people's attitudes that safer sex use would interfere with romance and influence sexual pleasure.

Changes in safer sex attitudes could also be influenced by increasing the frequency of parent/carer–teenage communication. This change could occur when parent/carer–teenage communication highlights the benefits of safer sex use. Safer sex knowledge messages would increase young people's confidence about the importance of practising safer sex (Ritchwood et al., 2015). Young people's knowledge of safer sex would promote their attitude towards safer sex.

Although the subjective norms factor was found to be a significant predictor of safer sex intentions, it was a weak effect, and it was not found to be important when compared to the other TPB constructs. This finding could be attributed to friends' recommendations for practising safer sex having a weak impact on young people's safer sex intentions. Parent/carer–teenage communication would have a stronger effect on safer sex intentions when compared to the peers' safer sex norms. To strengthen safer sex subjective norms, parents must encourage their children to promote and recommend safer sex use.

The perceived behavioural control factor was also a significant predictor of safer sex intentions and a significant predictor of safer sex behaviour. However, it was a weak predictor. These results were expected findings, as similar results were reported by Ajzen and Madden

(1986) and Reinecke et al. (1996). However, in their studies, young people's agency, self-efficacy, and control were found to be predictors of safer sex intentions and the actual safer sex behaviour, with a stronger effect on safer sex behaviour.

Perceived behavioural control was found to have an effect on safer sex intentions. Thus, to strengthen safer sex perceived behavioural control, it is important that young people discuss using safer sex with their partner before having sex and to have control over using safer sex correctly when having sex. Parent/carer–teenage communication would also play a role in strengthening safer sex perceived behavioural control since parent/carer–teenage communication would provide young people with the strength and power to control their safer sex practices.

6.5 **Partner's Expectations**

Confirmation of the Safer Sex Use Extended Model (SSUEM) suggested that partner's expectations were a distal predictor rather than an antecedent of safer sex intentions. Safer sex attitudes, perceived behavioural control, subjective norms, and sexual status mediated the association between partner's expectations and safer sex intentions. Although there is limited research on partner's expectations, some researchers (de Visser & Smith, 2001; DeHart & Birkimer, 1997) have suggested that partner's expectations of practising safer sex would be an important factor in predicting safer sex intentions and practices. This research provides evidence to suggest that partner's expectations are not missing from the predictive equation of safer sex intentions. Still, they play a distal role as a background factor influencing safer sex attitudes, subjective norms, and perceived behavioural control, rather than an antecedent as the reviewed literature suggested.

Partner's expectations, however, exerted a significant moderate effect on safer sex attitudes and perceived behavioural control. This finding indicated that safer sex attitudes and perceived control would be affected by the partner's expectations. This was illustrated, for example, in the response provided by the participants to the questions which asked, "If my partner wanted me to participate in "risky" sex and I said that we needed to be safer, we would still probably end up having "unsafe" sex" and "would suggest safer sex use instead of risky sex". In this sense, low partner safer sex expectations would increase risky sexual behaviour and lead to unsafe sexual activity. Low partner expectations towards safer sex use would increase the likelihood of having attitudes, subjective norms, and perceived behavioural control favouring unsafe sex use. In comparison, strong partner expectations for safer sex use would have the opposite effect. Hence, it might be the case that young people would not practise safer sex, instead giving in and not negotiating or suggesting safer sex use, feeling powerless and being unconfident about saying 'no' to unwanted unsafe sex.

The study findings could be attributed to the fear associated with rejecting a partner's request to practise unsafe sex. According to some researchers, requesting safer sex use can sometimes affect the relationship's stability and continuity, which can often raise suspicions of infidelity and distrust (Calzavara et al., 1998; Lotfi et al., 2012; Roberts & Cahill, 1997).

Evidence from this research suggests that partner's expectations are a background factor, alongside the other factors, such as demographic variables. As such, partner's expectations should be included in any proposed interventions to encourage safer sex use. Partner's expectations would be linked to inconsistent safer sex use. Hence, any future intervention to promote consistent safer sex use should focus on young people with low confidence in

negotiating or suggesting safer sex use with their sexual partner. Furthermore, interventions must address safer sex negotiation skills so that any high level of partner's control regarding safer sex use during the sexual relationship will be decreased. Such considerations are important to address when developing safer sex interventions. The interventions might also focus on parents/carer–teenage communication to empower their children about the importance of practising and negotiating safer sex use with their sexual partner.

6.6 Alcohol Consumption

The findings also suggested that, like partner's expectations, alcohol consumption functioned as a background factor for safer sex intentions. Alcohol consumption association with safer sex intentions was mediated significantly by safer sex subjective norms only. For young people, choosing to consume alcohol would act as a factor affecting their safer sex intentions and behaviour.

As discussed in Section 2.4.2, findings are mixed regarding the influence of alcohol consumption on safer sex use. However, the majority of studies (Blignaut et al., 2014; Cooper & Gordon, 2015; Davis et al., 2014) had suggested that alcohol consumption would be an important factor in predicting safer sex intentions. This research provides evidence to suggest that alcohol consumption plays a distal role as a background factor influencing subjective norms, unlike other studies, such as that conducted by Conner et al. (1999), that found alcohol consumption was mediated by safer sex attitudes and perceived behavioural control. This research revealed that being under the effect of alcohol use would increase the likelihood of one having subjective norms which favoured practising safer sex. A possible explanation is that

young people who consume alcohol might well be encouraged by friends to practise safer sex every time they engage in sexual activity. In other words, young people whose partying involves alcohol are encouraged by their peers to practise safer sex. More research, however, is needed to further investigate alcohol consumption's effect on safer sex behaviour.

Evidence from this research suggests that the effects of alcohol consumption should be included in any future intervention. It is important that future interventions recommend moderate alcohol drinking when promoting safer sex use. These interventions should always suggest safer sex use among young people and their intoxicated peers.

6.7 **Sex Education**

A noteworthy finding, given that nearly all respondents had received sex education in high school, was that sex education neither played a role as a background factor nor a possible antecedent of safer sex intentions (see Model 3). The analysis revealed that sex education should be excluded from the final extended model. These findings suggested that there is no association between sex education, TPB constructs and safer sex intentions. These results were not expected, as previous studies conducted by Kirby and Laris (2009) had revealed that sex education programs have a significant positive influence on intentions to safer sex use and safer sex attitudes. Kirby (2011) noted that sex education is significantly associated with consistent safer sex use.

These results were not also consistent with the Jalambadani, Garmarodi, and Tavousi (2017) study, which found sex education as a possible background factor of safer sex intentions. The authors found that sex education was a significant predictor of safer sex attitude and

perceived behavioural control. A closer examination of the content of sex education in SA would be useful to investigate in future research.

6.8 Illicit Drug Use

Illicit drugs were not used by most of the respondents. The SEM analysis revealed that illicit drug use was a weak predictor of safer sex intention in the TPB (Model 7). The findings showed that illicit drug use negatively predicted safer sex intentions. These results were expected, as Semple et al. (2004) indicated that young people under the influence of illicit drugs would engage in risky sexual behaviours such as unsafe sex.

The analysis of the effect of illicit drug use in the final model SSUEM, however, revealed that illicit drug use does not act as a significant predictor of safer sex intentions. These findings were unexpected, as previous studies conducted by Wand et al. (2016) reported that substance use as illicit drug use is associated with engaging in risky sexual behaviours and unsafe sex. A study conducted by Gu et al. (2009) suggested that the association between TPB constructs and condom use could be weakened by a longer duration of drug use. Further research is, therefore, necessary to examine the role of illicit drug use in relation to readiness for safer sex behaviour change.

6.9 Informing a Safer Sex Intervention

The primary aim of this research was to provide a theoretical basis for a safer sex intervention for South Australian young people aged 18–24 years by applying the TPB (Reinecke et al., 1996). The findings from the present study indicate that young people's intentions to engage in safer sex, such as using condoms or dental dams, were mainly explained

by the frequency of parent/carer–teenage communication and sexual status, followed by the three constructs (attitudes, subjective norms, and perceived control) of TPB and the additional tested background factors, namely partner's expectations, alcohol consumption, and religiosity.

The present study represents a theoretical contribution to increase our understanding of safer sex intentions predictors among South Australian young people. This research provides evidence for two possible safer sex interventions that could use the Safer Sex Use Extended Model (SSUEM) based on the TPB model, or could focus on increasing the frequency of parent/carer–teenage communication.

Evidence from this research suggests that the three TPB constructs, namely safer sex attitudes, subjective norms, and perceived behaviour, would provide a good basis for developing safer sex interventions for South Australian young people. In addition, the proposed additional antecedents, parent/carer–teenage communication, sexual status, and the proposed background factors such as partner's expectations, alcohol consumption and religiosity should be considered in any future intervention.

Hence, the answer to the posed research question at the beginning of this study, i.e., "*What factors are required to extend the TPB safer sex model based on the factors identified by reviewed literature?"* is that the frequency of parent/carer–teenage safer sex communication and the sexual status of the participants act as antecedents, and partner's expectations, alcohol consumption and religiosity act as background factors.

The study findings revealed that the proposed safer sex use extended TPB model (Figure 2-1) had to be altered to fit the observed data. As a result, the final Safer Sex Use Extended Model (SSUEM) that was formed based on the SEM analysis fitted the observed data well in

explaining young people's intentions to safer sex use. Thus, the second research question, *"By applying Structural Equation Modelling (SEM), does the proposed extended TPB safer sex model fit the observed data in explaining young SA people's intentions to safer sex use?"* was answered in this study.

Besides the TPB variables and the additional antecedents, the proposed background variables, such as alcohol consumption, religiosity, and partner's expectations, also added significant predictive power to the safer sex intentions. However, any intervention aiming to change these factors, except for parent/carer–teenage communication and sexual status, would have a distal effect on safer sex intentions. Any intervention should focus on increasing the frequency of parent/carer–teenage safer sex communication and considering the sexual status of the participants. Hence, this study suggests two possible bases for a safer intervention, using either all the factors in the SSUEM or an intervention that only focuses on increasing parent/carer–teenage communication.

A number of studies have successfully designed, assessed, and evaluated intervention programs to modify behaviour based on the TPB. Clues for the development of a suitable safer sex intervention can be found in several studies, such as the intervention used in Project RESPECT by Kamb et al. (1998), which is considered one of the most successful interventions (Rhodes et al., 2007). Project RESPECT was designed to evaluate the effectiveness of STDs/HIV counselling and testing to increase condom use. One of the main components of the intervention was a four-session Enhanced Counselling module based on the Integrative Model of Behavioural Prediction (IM) developed by Fishbein and Yzer (2003). One of the outcomes of the analysis of Project RESPECT showed that counselling interventions based on IM significantly

increased condom use, led to a reduction in unprotected sex, and decreased the incidence of STDs compared to informational interventions (Kamb et al., 1998).

Fishbein and Yzer (2003) outlined the method required to design an effective health behaviour intervention based on a theory such as Project RESPECT (Kamb et al., 1998). First, it was suggested that, instead of sitting in the office to develop measures of attitudes, subjective norms, and perceived behavioural control, "the investigator must go to members of that population to identify salient outcome, normative, and efficacy beliefs. That is, one must understand the behaviour from the perspective of the population under consideration" (Fishbein and Yzer, 2003, p. 168).

Fishbein and Yzer (2003) outlined the process of designing an intervention in 4 stages:

First, Applying the Model: It was suggested that, before forming an intervention, it is important to identify a specific behaviour that is the target for change or reinforcement. Defining the behaviour should include the action (such as using), the target (safer sex as condoms or dental dams) and the context (every time having sex). Fishbein and Yzer (2003) stressed the importance of distinguishing between behaviour, behavioural categories (using safer sex), and goals (reducing STIs). An effective intervention should be directed at changing behaviour and not behavioural categories or goals. Interventions should aim to train young people to develop skills to perform the actual behaviour and overcome barriers, rather than to run communication campaigns. Interventions should include running workshops that cover details about safer sex negotiation skills and how to use safer sex methods, such as condoms and dental dams. This could be done, as Schaafsma, Kok, Stoffelen, and Curfs (2015) have suggested, by using modelling, role-play, rehearsal, and practice skills.

Fishbein and Yzer (2003) specified that, after identifying one or more behaviours, the model could be used after obtaining measures of beliefs, attitudes, norms, self-efficacy, intention, and behaviour. Fishbein and Yzer (2003) suggested that:

> an investigator can (a) determine whether intention is influenced primarily by attitudes, norms, or self-efficacy in the population under consideration, and (b) identify the specific beliefs that discriminate between those who do or do not intend to perform the behaviour. It is these discriminating beliefs that need to be addressed in a theory-based communication (p. 169).

Hence, behavioural change should influence the proximal factors (attitudes, subjective norms, and perceived behavioural control) of the intentions to engage in the behaviour.

Secondly, Identifying Intervention Goals and Target Populations: Fishbein and Yzer (2003) suggested that different types of interventions could be needed, especially "if one has formed an intention but is unable to act upon it, or if one has little or no intention to perform the behaviour" (p. 169). The required type of intervention is determined by the target population in the intention–behaviour configuration. Thus, the same intervention may not be equally effective in all populations, such as the target population for safer sex intervention use could be divided by religion or sexual status and so on. Thus, for religious sub-populations, the safer sex intervention should take into consideration the conservative moral beliefs of the religions in order to promote safer sex use among young people.

Thirdly, The Selection of Beliefs to Target in a Communication: The selected belief should be strongly related to the intention or behaviour. To make the intervention worthwhile within the studied population, there should be enough people who do not already hold the belief such that they do not use safer sex every time when having sex. The investigator should have

strong arguments that such a belief is possible to be changed. Fishbein and Yzer (2003) suggested that priming theory should be used, complementary with IM. Priming theory focuses on strengthening the association between a belief and its outcomes. The process of strengthening is called media priming. Media priming guides select the targeted belief. Fishbein and Cappella (2006) argued that choosing the belief to be targeted to change the behaviour does not show how to address these beliefs in persuasive communication. Theories of communications, therefore, are needed to craft the messages for a belief change. For these messages to be effective, they should be judged to be realistic, and the receivers will learn something new from the message. Thus, further research is required about using priming theory when informing a safer sex intervention.

Fourthly, Analysing Intervention Effects: Fishbein and Yzer (2003) suggested using the covariance-variance technique to analyse the effect of the intervention and help us understand priming effects. This technique shows whether a difference in correlation is due to movements in covariance (association), variance, or both, while analysing the effect of integrative theory by comparing means in an intervention condition to those in a baseline or a control condition.

Armitage and Talibudeen (2010), for example, used control and experimental interventions to test their effect on condom use. Experimental interventions consisted of interviewing participants and asking them about the advantages and disadvantages of carrying condoms and the factors that might encourage or inhibit carrying them. The experimental intervention targeted attitudes, subjective norms, and perceived behavioural control, while the control intervention consisted of delivering knowledge about condom use. Armitage and Talibudeen (2010) concluded that an intervention based on the theory of planned behaviour

could successfully change safe sex intentions. By using an interview style to implement the intervention, the information was found to be useful, thought-provoking, and memorable.

The Safer Sex Use Extended Model (SSUEM) suggested that parent/carer–teenage communication was the strongest predictor of safer sex intentions and safer sex behaviour. Thus, parent/carer–teenage communication should be the focus of any future intervention program. A future intervention to promote safer sex use is, therefore, to develop parent–teenage safer sex communication programs.

Widman, Evans, Javidi, and Choukas-Bradley's (2019) meta-analysis of parent-based interventions studies on young people's sexual behaviour suggested that future interventions can shape adolescent's sexual choices, such as the use of condoms. Effective intervention programs are considered a protective factor for youth. Widman et al. (2019) suggested that focusing on an online program and developing father-based interventions can boost the effectiveness of parent/carer–teenage communication programs. The authors suggested that effective interventions should target adolescents and their parents equally. In an earlier study, Widman, Choukas-Bradley, Noar, Nesi, and Garrett (2016) outlined the main strategies for developing future effective interventions. The future intervention required educational efforts to provide clear, practical instructions and to help parents optimize the timing and language used in their communication. Also, formal intervention programs with parents, physicians and other health care professionals who interact with parents and their youth are needed as well to encourage sexual health communication. The formal intervention program would provide parents and youth with the required resources and communication skills to initiate such sexual health discussions at home.

An early intervention was conducted by Green and Documét (2005) to promote parent–teenage communication. The researchers targeted parents and trained them regarding how to talk with their children about sexual health programs. The aim of this study was to increase parent/carer–teenage communication and to prevent teen pregnancies. This intervention included a community-based program of three waves of workshops that focused on providing parents with sexual health information, increasing their comfort in discussing sexuality with their children, and demonstrating how to use age-appropriate language with their children. Future interventions could use similar programs to increase parents' confidence to communicate with their children about sexual health issues such as safer sex behaviour.

The works of the researchers mentioned above suggest that it is possible to successfully design and implement an intervention program based on TPB. Safer sex interventions would be designed in such a manner that an effective communication campaign will target and train young people to develop and improve safer sex skills, such as using safer sex, and negotiation skills about using safer sex methods to perform the actual behaviour, and that will help them overcome barriers to performing the behaviour.

This study provides some implications for safer sex interventions. The results recommend implementing communication skills training programs for parents to assist them with approaching their children about sexual health matters. It should include developmental messages to share with their children, such as negotiating safer sex use, contraceptive methods, and the need for regular STI testing.

6.10 **Strengths and Limitations of the Study**

The present study had a number of strengths. The results of this study can contribute to the future development of safer sex interventions as described earlier. The surveyed sample was large and approximately represented South Australian young people sub-populations. The demographic findings aligned with the Australian Bureau of Statistics (ABS) (2016) data that showed more than half of the South Australian population is made up of females, described as Caucasian/Anglo-Saxon, and one-third of the South Australian population has no religious affiliation. This study, however, cannot be generalised due to the limitations discussed below. The results findings therefore should be interpreted with caution.

The benefits of conducting a pilot study in this project served as a guide to develop a plan for the research and to assess the validity and reliability of the self-developed instrument (Prescott & Soeken, 1989). The pilot study achieved its purpose as it provided the researcher with the opportunity to correct defects and to make improvements to the instrument, while also identifying some likely outcomes (Prescott & Soeken, 1989; Van Teijlingen et al., 2001). The researcher did not use a traditional method to analyse the data; instead, the data were analysed by using Mplus. CFA and SEM were conducted following Ullman's (2006) suggestions.

Alongside these strengths, this research project had several limitations that should be noted. First, there was a questionnaire bias which led to a methodological limitation (Choi & Pak, 2005). This methodological limitation was due to how the study's questionnaire was designed, especially because the elicitation study that Fishbein and Yzer (2003) had suggested was not applied prior to developing the questionnaire. As noted before, Fishbein and Yzer (2003) recommended that an investigator should not develop measures of the TPB constructs via

only reviewing the literature. Thus, it might have been expected that one-on-one interviews would have been conducted by the researcher to ensure that the designed measures fitted the population and the behaviour in question. The researcher acknowledges that the developed measures in this study therefore might not have been the best measures for safer sex intentions and behaviour. Content validity was tested by expert groups prior to conducting the pilot study. However, future validation with sexual health experts is recommended to review the applicability of the survey instrument (Yaghmaei, 2003) and suggest alterations.

The survey instrument designed and used by the researcher in the pilot study could have been subject to author bias (Patton, 2002). The designed questions were formulated based on the study research questions, the literature review, and the researcher's perspective. This implies that these questions might have prevented the study participants from providing accurate answers (Choi & Pak, 2005) and in turn prevented generalisability of the data (Wang, 2017; Flinton, 2020). The sources of the possible questionnaire bias could have arisen due to the designed questions that had scales such as forced choices, missing intervals and scale formats, such as in the items that measured sex education, parent/carer–teenage communication, alcohol consumption, and illicit drug use. For example, the items that measured parent/carer–teenage communication had ambiguity in the scales (a missing interval bias and faulty scale) used for the response choices (all the time, few times, once or twice, or never), in which "times" was not defined but it meant the number of occasions that safer sex communication was initiated between parents/carers and the teenager..

The sex education factor was found as neither a background factor nor an antecedent to safer sex intentions, which was not consistent with the reviewed literature. A possible

explanation for the inconsistent results could be attributed to the measurement level scale for the question about sex education. Sex education was treated as a dichotomous variable instead of asking questions about sex education programs that respondents had been taught that featured safer sex use, and their influence on behaviour. It is, therefore, suggested that future research take into consideration the different sex education programs that are implemented in South Australia when investigating safer sex intentions among South Australian young people.

Moreover, parent/carer–teenage communication measured only the frequency of parent/carer–teenage safer sex communication and not the quality. Based on the reviewed literature (Section 2.4.2), the importance of open parent/carer–teenager sexual communication and the quality of communication were noted in the rationale. However, the survey instrument addressed only the frequency of communication. The findings of this study revealed that parent/carer–teenage communication is among the strongest factor to predict safer sex use. These findings should be accepted with caution because they only tested whether parent/carer–teenage communication was present or not. Thus, the quality of the discussion aspect is important and should be investigated in future studies. It is recommended that future studies design survey instruments that measure both the frequency and the quality of parent/carer–teenage communication. Improved measurement of parent/carer–teenage communication would better inform future research.

In addition, due to question bias, dichotomisation was used. In addition to the instrument bias, the researcher acknowledges that there was limitation in the way the data for several variables (such as sex education, alcohol consumption, illicit drug use) were treated. These continuous variables such sex education, parent/carer–teenage communication, alcohol

consumption and illicit drug use were dichotomised for an efficient statistical analysis. The researcher acknowledges that using dichotomisation led to loss of sample power and also possibly to serious bias (Fedorov, Mannino, & Zhang, 2009; Royston, Altman, & Sauerbrei, 2006). Dichotomising these variables might have led to the exclusion of the sex education factor especially because only one item was developed to measure sex education. For these reasons, the findings of this study should be accepted with caution. It is recommended that future research use the Fishbein and Yzer (2003) suggestions for designing study questions, as highlighted earlier in this Chapter, to identify any potential questionnaire bias before conducting the study (Choi & Pak, 2005).

Further, an important limitation of the study that needs to be acknowledged was the use of a cross-sectional study design. The primary limitation of using a cross-sectional study was the inability to establish cause and effect relationships between the tested variables (Levin, 2006). This means that it is not possible to predict how the safer sex behaviour of South Australian young people might evolve. However, the association between the safer sex intentions and behaviour was found to be statistically significant. As a recommendation for future studies, a longitudinal study design would provide greater evidence of the relationship between the predictors and safer sex behaviour.

The study sample was drawn from across the state, mainly online via Facebook. For general purposes, Facebook may not be the best way to recruit participants. Given the age range of 18–24 for this particular study, using Facebook was an appropriate way to get a large sample size and a diverse group of participants. Still, it may have missed young people with low Internet skills or who were not Facebook subscribers. Postcodes were not recorded, so it was not possible

to know whether the participants were from the Adelaide metropolitan or rural areas. Thus, a selection bias may have occurred (Hammer, du Prel, & Blettner, 2009), which could be significant because of the ethnic and cultural background differences across the state of SA and the differences in available health services. It is recommended that postcodes be recorded in future studies.

Young adult women dominated the present study. The researcher acknowledges that the study findings do not reflect the views of both young adult men and women but primarily represent those of South Australian young women. The study's findings should be interpreted with caution, especially when safer sex interventions are being designed. It is suggested that future research use different recruitment strategies (Markanday, Brennan, Gould, & Pasco, 2013) to encourage young adult men and other genders to participate in sexual health studies.

The researcher also acknowledges the limitation of recruiting participants from one educational pathway (Flinders University) rather than from other South Australian educational pathways such as Adelaide University, UniSA and TafeSA. The researcher had contacted and invited these educational pathways during the pilot and main study phases, but the request was rejected. As a result, recruitment and sampling bias (Flinton, 2020) might have occurred in the pilot and main study, thereby affecting the possibility of generalising (Wang, 2017) the study findings among South Australian young people aged between 18–24 years. This bias might give an overrepresentation of young people who attend Flinders University while under-representing young people who attend the other educational sites (Flinton, 2020). It is worth noting that the other educational sites are mainly located in the city of South Australia. Thus, the diversity of the South Australian youth cohort might be under-represented in the actual study. Therefore, it is

recommended that more than one educational pathway be involved in the recruitment process for future research.

Also, a socio-economic status bias (Warriner, Keith, & Miller, 2002), such as less access to technology or less confidence in a high-literacy environment, might have impacted the response rates. Thus, it could be expected that a higher response rate would have occurred from educated participants with medium- to high-economic status who knew how to access a survey; for this reason, more than half of the participants were undergraduate or graduate university students.

Nonetheless, "coverage error" as Couper (2000, p. 467) described it, would have influenced the collected data (as a sampling error), as the participants who did not have access to a Facebook account, computer, or phone device connected to the Internet were not able to initiate or participate in this study.

7- CONCLUSION

This study contributes new information about possible safer sex interventions that have not yet been explored in South Australia. This present study represents a relatively novel application of extending the Theory of Planned Behaviour (TPB). This study suggests extending the TPB model by adding parent/carer–teenage communication and sexual status as antecedents to safer sex intentions. The study also provides evidence that the TPB model could be extended by adding partner's expectations, alcohol consumption and religiosity as background factors. In addition, the study provides evidence that an intervention based on TPB can successfully change safer sex use. The antecedents and background factors to safer sex use have been identified and confirmed. This study identified factors that promote safer sex practices and is informative for designing an intervention to motivate young people to practise safer sex. The proposed Safer Sex Use Extended Model (SSUEM) was found useful for explaining young people's intentions to safer sex use.

The study findings are critical for promoting safer sex use to reduce the notification rates of STIs and unplanned pregnancy among young people. The proposed extended TPB safer sex model fit the observed data in explaining young South Australian people's intentions to safer sex use. Parent/carer–teenage communication was found to be critical in achieving this aim by its effect on increasing safer sex use. The findings reinforce the importance of promoting parent/carer–teenage safer sex communication by forming interventions that will enhance parents and children's confidence and skills to discuss safe sex issues. This study provides

evidence that parent/carer–teenage sexual communication should be a primary focus for any future intervention focusing on promoting safer sex use among young people, especially young adult women in South Australia.

Fishbein (2000) noted, "What we do need, however, is for investigators and interventionists to better understand and correctly utilize existing, empirically supported behavioural theories in developing and evaluating behaviour change interventions*"* (p. 277). This understanding provided evidence that behavioural theories can also form the basis for evidence-led interventions. In this research, a theoretical base for a safer sex intervention was established by extending the TPB model. The Theory of Planned Behaviour (TPB) constructs of attitude, subjective norms, and perceived behavioural control explained a substantial portion of the intentions to safer sex use. A possible intervention to promote consistent safer sex use could also be designed based on the extended TPB model.

The findings suggest that safer sex attitudes, subjective norms and perceived control are important antecedents of safer sex intentions. These factors should be added to any intervention aiming to promote safer sex use among South Australian young people. The findings suggest that the additional possible antecedents, parent/carer–teenage communication and sexual status, should also be added to any potential future intervention. In other words, safer sex attitudes, what friends think about safer sex, self-efficacy and control to perceived safer sex use, frequent parent/carer–teenage safer sex communication, and sexual status would also form the basis for a possible safer sex intervention.

Both the theoretical and the statistical analysis of the SSUEM provide evidence that the background factors, such as religiosity, alcohol consumption, and partner's expectations, should

not be excluded from future interventions. These background factors should also be integrated into any future health promotions or future interventions.

The study aimed to inform health investigators of a possible safer sex intervention to increase consistent safer sex use. This possible intervention would reduce the STIs and unplanned pregnancies notification rates in SA. This study sought to gather information to inform an intervention based on theory.

This study underlines the importance of interventions to target parents/carers directly in order to increase the frequency of safer sex communication, especially with their young girls. Training workshops would also be useful to strengthen this association. It is important to highlight that strengthening school and parents/carers communication would also increase parent/carer–teenage communication. Nonetheless, the quality of safer sex communication should be the primary target.

Interventions to increase safer sex can also focus on the three constructs of TPB, namely attitudes, subjective norms, and perceived behavioural control, and the additional antecedents, namely frequency of parent/carer–teenage communication and sexual status. As identified in this research, a safer sex intervention may be possible in South Australia.

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9- APPENDICES

9.1 Flyer for the Pilot Study

Flinders UNIVERSITY

Pilot Study

Let's Talk About Safer Sex

School of Education
Sturt Road, Bedford park, SA 5042
GPO Box 2100
Adelaide SA 5001
Tel:08 2015584
www.flinders.edu.au
CRICOS Provider No. 00114A

This research project aims to understand more deeply the factors influencing safer sex decisions by investigating the safer sex experiences of South Australian young people. In particular it explores the influence of cultural background and any prior experiences of sex education on your safer sex decisions.

You will be asked questions personal questions about your attitudes, perceived behavioural beliefs, subjective norms, skills and environmental constraints that may impact on your intentions towards your safer sex decisions. Also, you will be asked personal questions about your sexual life and substance use such as alcohol and drugs to more deeply understand the effect of these factors on safer sex decisions.

Selection Criteria:

- Must be aged between 18 and 24 years;
- Who live and studied high school education (Years 7-12) in South Australia.

The survey is available online at the URL below and is expected to take approximately 45 minutes to Complete. https://www.surveymonkey.com/r/QJF7WV9

To register your interest in second phase or for further information please contact:

Rowaida Sleem

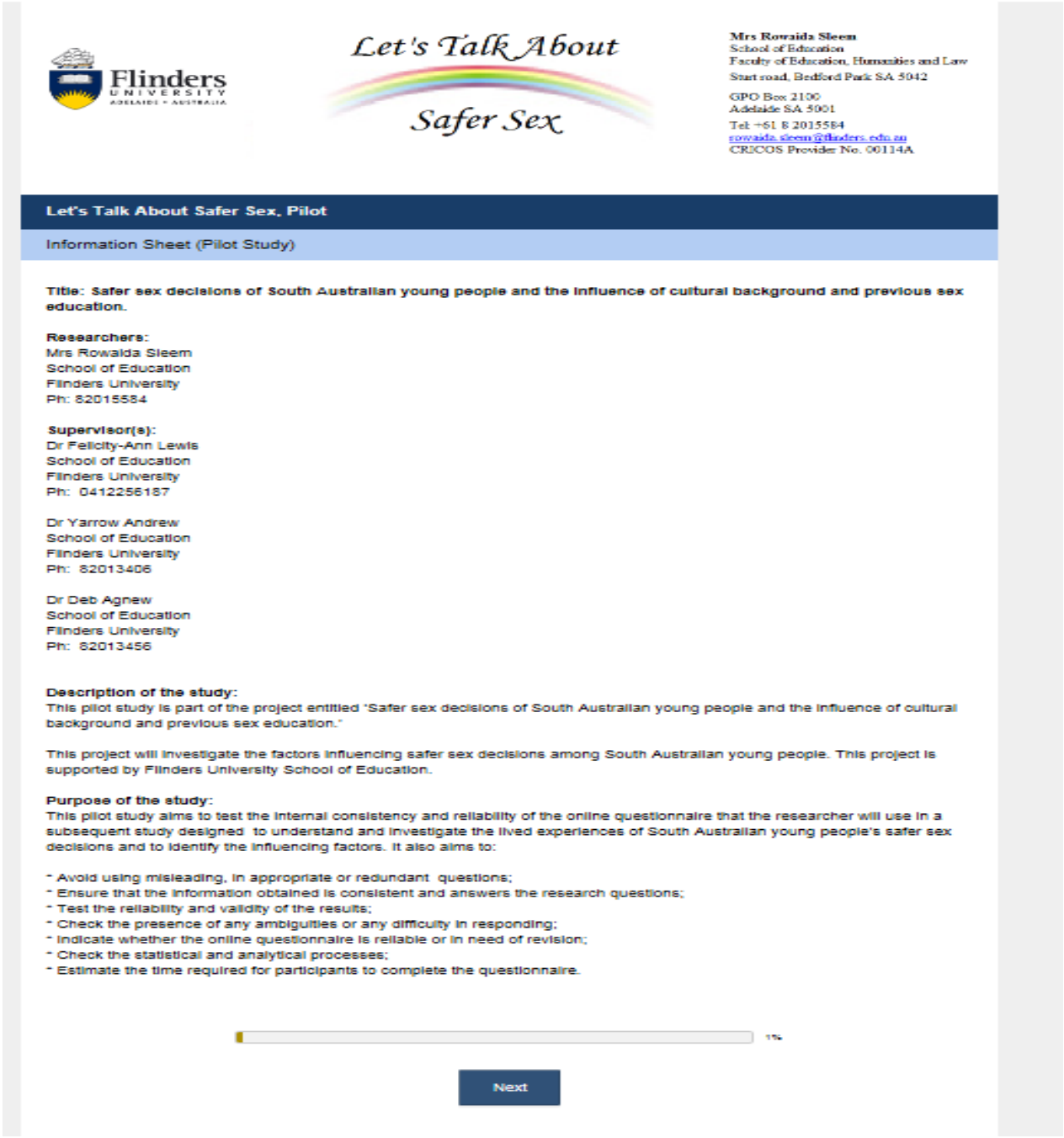
Email: sasafer.sex@gmail.com

Facebook: @LetsTalkAboutSaferSex

This research has been approved by the Flinders University Social and Behavioural Research Ethics Committee (Project Number 7549).

Rowaida Sleem
E-mail: sasafer.sex@gmail.com
https://www.surveymonkey.com/r/QJF7WV9

9.2 Pilot Study: Information sheet, Consent Form and the Questionnaire



Flinders UNIVERSITY ADELAIDE • AUSTRALIA

Let's Talk About Safer Sex

Mrs Rowaida Sleem
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Let's Talk About Safer Sex, Pilot

Information Sheet (Pilot Study)

Title: Safer sex decisions of South Australian young people and the influence of cultural background and previous sex education.

Researchers:
Mrs Rowaida Sleem
School of Education
Flinders University
Ph: 82015584

Supervisor(s):
Dr Felicity-Ann Lewis
School of Education
Flinders University
Ph: 0412256187

Dr Yarrow Andrew
School of Education
Flinders University
Ph: 82013406

Dr Deb Agnew
School of Education
Flinders University
Ph: 82013456

Description of the study:
This pilot study is part of the project entitled "Safer sex decisions of South Australian young people and the influence of cultural background and previous sex education."

This project will investigate the factors influencing safer sex decisions among South Australian young people. This project is supported by Flinders University School of Education.

Purpose of the study:
This pilot study aims to test the internal consistency and reliability of the online questionnaire that the researcher will use in a subsequent study designed to understand and investigate the lived experiences of South Australian young people's safer sex decisions and to identify the influencing factors. It also aims to:

* Avoid using misleading, in appropriate or redundant questions;
* Ensure that the information obtained is consistent and answers the research questions;
* Test the reliability and validity of the results;
* Check the presence of any ambiguities or any difficulty in responding;
* Indicate whether the online questionnaire is reliable or in need of revision;
* Check the statistical and analytical processes;
* Estimate the time required for participants to complete the questionnaire.

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The research objectives

1- To understand and investigate the influence of cultural background and sex education on South Australian young people's safer sex decisions and subsequent behaviors.

2- To identify the factors behind safer sex decisions among South Australian young people and discover whether there are any differences in the factors influencing safer sex decisions between young people who consider themselves sexually active or inactive.

3- To investigate the safer sex experiences of South Australian young people.

What will I be asked to do?

This pilot study involves an anonymous online questionnaire. The online questionnaire will include personal questions about your attitudes, perceived behavioural beliefs, subjective norms, skills and environmental constraints that may impact on your intentions towards safer sex. Also, it will include personal questions about your sexual life and substance use such as alcohol and drugs to more deeply understand the effect of these factors on safer sex decisions. As this is a pilot study, you will be asked to provide a comment about the clarity of the questionnaire, to help other participants. This survey will take about 45 minutes to complete. The data will be collected, securely stored as a computer file, statistically analyzed and then destroyed after 5 years. The data will be used to inform the researcher whether the proposed instrument (online questionnaire) is appropriate and allow for revision. Also, it will provide the researcher with feedback on the research process and the expected outcomes. The collected data will be reported in the thesis and/ or published in a journal. You will be eligible to participate, if you like, in the actual study and complete the updated and revised questionnaire.

What benefit will I gain from being involved in this study?

Participants may not benefit directly from participation in this research. However, your thoughts and comments will assist in testing the effectiveness of the online questionnaire that aims to investigate the influencing factors that are operating on young people when making safer sex decisions, in particular the influence of cultural background and previous sex education on your safer sex decisions. It will also assist the researcher to apply some changes on the questionnaire if required, based on your results prior to conducting the main research project.

Will I be identifiable by being involved in this study?

Be assured that any information provided will be treated in the strictest confidence and none of the participants will be individually identifiable in the resulting thesis, report or other publications, and that the confidentiality of the material will be respected and maintained. The online questionnaire will be anonymous and you will not be asked to provide your name, student ID number or any contact details at any stage.

Are there any risks or discomforts if I am involved?

It is acknowledged that this study concerns topics of a sensitive nature. Therefore, it is possible that the questions contained in the questionnaire may cause participants to become emotionally distressed, embarrassed or anxious when recalling their lived experiences or thinking about their future sexual activity. However, you can exit the online questionnaire if you feel uncomfortable and the data will not be submitted and counted. If you feel emotionally distressed at any time during or after participating in this questionnaire, support is available by calling Lifeline Adelaide 24/7 on 13 11 14, Flinders counseling service on 082012118, UniSA counseling service (Metropolitan campuses) on 1300301703, Adelaide University counseling service on 08 8313 5663, TAFE SA counseling service (City campus) on 08 8463 5082, SHine SA Sexual Healthline on 1300 883 793 or HIV PEP Hotline on 1800 022 226.

Let's Talk About Safer Sex

Mrs Rowaida Sleem
School of Education
Faculty of Education, Humanities and Law
Sturt road, Bedford Park SA 5042

GPO Box 2100
Adelaide SA 5001
Tel: +61 8 2015584
rowaida.sleem@flinders.edu.au
CRICOS Provider No. 00114A

Let's Talk About Safer Sex, Pilot

Information Sheet (Cont.)

How do I agree to participate?
Participation is voluntary. It is required to obtain your consent by completing the online click consent form before you start. Please complete the Consent Form on the next page and then start the questionnaire by clicking on the NEXT button below the form. At the end of the questionnaire, you will be asked to click on the DONE button in order to submit your answers. We encourage you to complete all sections of the survey as only completed questionnaires will be conisdered and counted.

How will I receive feedback?
If you are interested, a summary report will be posted on the Facebook page of the research (@LetsTalkAboutSaferSex).

Thank you for taking the time to read this information sheet and we hope that you will accept our invitation to be involved.

This research project has been approved by the Flinders University Social and Behavioural Research Ethics Committee (Project number 7549). For more information regarding ethical approval of the project the Executive Officer of the Committee can be contacted by telephone on 8201 3116, by fax on 8201 2035 or by email human.researchethics@flinders.edu.

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Let's Talk About Safer Sex

Mrs Rowaida Sleem
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rowaida.sleem@flinders.edu.au
CRICOS Provider No. 00114A

Let's Talk About Safer Sex, Pilot

Consent Form

*** 1. You are invited to take a part in this voluntary and anonymous research survey about "Safer sex decisions of South Australian young people and the influence of cultural background and previous sex education." Completing this online questionnaire will require approximately 45 minutes. Taking part in this study is completely voluntary.**

Please complete the consent form below and then start the online questionnaire by clicking on the NEXT button below.

Declaration by the participants:

- [ ] I have read the participants 'Information Sheet' or someone has read it to me in a language that I understand;
- [ ] I am aware that I can download a copy of the 'Information Sheet' and this 'consent form';
- [ ] I understand the purpose and risks of the research described in this project;
- [ ] I understand that my responses will be kept strictly confidential, and digital data will be stored in secure computer files;
- [ ] I understand that I may not directly benefit from taking part in this project;
- [ ] I freely agree to participate in this research study as described and understand that I am free to withdraw at any time during the project and withdrawal will not affect my relationship with any of the named organizations an/or research team members;
- [ ] I provide my consent for the information collected about me to be used for the purpose of this research study only.

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Let's Talk About Safer Sex, Pilot

Section: I

If you experience any distress during or after participating in the survey, you can access support by calling Lifeline Adelaide 24/7 on 13 11 14, Flinders counseling service on 082012118, UniSA counseling service (Metropolitan campuses) on 1300301703, Adelaide University counseling service on 08 8313 5663, TAFE SA counseling service (City campus) on 08 8463 5082, SHine SA sexual Health line on 1300 883 793 or HIV PEP Hotline on 1800 022 226.

Please choose the number that best reflects your response to each of the following statements in sections I.

Note: The researcher defines "partner" as anyone that you engage in sexual activity with such as a casual partner, girlfriend, boyfriend, wife, husband or sex worker.

By using the same link and mobile/computer device, you can complete a portion of this survey and return later to finish the rest.

*** 2. Do you consider yourself as .....?**

Sexually Active	Sexually Inactive	Unsure
○	○	○

*** 3. How many different sexual partners did you have in the last 6 months?**

1 Partner	2 Partners	3 Partners	4 Partners	5 Partners	6 Partners	More Than 6 Partners	None
○	○	○	○	○	○	○	○

*** 4. Have you completed your high school education (years 7-12) in South Australia?**

YES	NO
○	○

6%

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Powered by SurveyMonkey

Safer Sex Questionnaire:
If you experience any distress during or after participating in the survey, you can access support by calling Lifeline Adelaide 24/7 on 13 11 14 or Flinders counselling service on 082012118.

1- Do you consider yourself as …? ☐Sexually active ☐Sexually inactive ☐ Unsure
2- How many different sex partners did you have in the last 6 months? ☐ 1 partner ☐ 2 partners ☐ 3 partners ☐ 4 partners ☐ 5 Partners ☐ 6 partners ☐ More than 6 ☐ None
3- In which country were you born? Please Specify.
4- Have you completed your high school education (Years 7-12) in South Australia? ☐Yes ☐No
5- How old are you? Drop List: >18, 18, 19, 20, 21, 22, 23, 24, >24. If >18 or <24
6- How would you describe your sexual orientation and/or gender identity? Tick as many as apply. ☐ Male ☐ Heterosexual ☐ Female ☐ Gay ☐ Homosexual ☐ Lesbian ☐ Bisexual☐ Queer☐ Asexual ☐ Intersex ☐ Transgender ☐ Prefer not to say ☐ Other (please describe).
7- Race/ethnicity: ☐ Indigenous Australian ☐ Anglo-Saxon ☐ Caucasian ☐ African American ☐ Hispanic/ Latino☐ Indian ☐ Asian/Pacific Islander ☐Others (Please Specify).
8- Religion: ☐ Christian ☐ Buddhist ☐ Muslim ☐ Hinduist ☐ Sikhist ☐ Baha'i ☐ Australian Aboriginal Traditional Religions ☐ Jewish ☐ Spiritualist ☐ Wiccan ☐ No religion ☐ I don't wish to say ☐ Others (Please Specify).
   8a-If participants selected any option except NO religion, they would go to question 8a.
   8b-How important is your religion to you? ☐Very important ☐ Quite important ☐ Not at all important ☐ I have no religion.
9- With whom do you live? ☐ Living with both parents ☐ Living with either parents☐ Living with my partner ☐ Living with my friend ☐ Living alone ☐ Others (Specify)

10- What is your fortnightly income? ☐<400 ☐ Between 400 & 999 ☐Between 1000 & 1499 ☐Between 1500 & 1999 ☐>$ 2000 AUD

11- Relationship Status: ☐ Monogamous relationship for less than three months ☐ Monogamous relationship for three months or more ☐ Dating and non-monogamous relationships ☐ Not in any intimate relationship

12- How frequently do you drink alcohol: ☐Never/Rarely, ☐1-2 times per month ☐More than 1-2 times per month, ☐I'm a benign drinker

13- Have you ever used drug? ☐ Yes ☐ No ☐Unsure

14- Which description best describes your educational level? ☐TAFE SA student ☐Undergraduate ☐Postgraduate ☐High School ☐Other (Specify)

15- Which of the following describes your area of study? ☐ Business ☐ Arts, Humanities and Social Sciences ☐ Education and Health science ☐ Science and Engineering ☐ Trades ☐ Hospitality ☐ I did not continue my study ☐ Other (Specify)

16- When you were growing up, did your parents talk to you about using safer sex methods such as condom use or dental dam use before you started having sex? ☐ Most of the Times ☐About half the times ☐Sometimes ☐ Never

17- Did your parents talk to you about using safer sex methods such as condom use or dental dam use after you started having sex? ☐Most of the Times ☐About half the times ☐ Sometimes ☐ Never ☐ Not applicable

18- In the last 6 months, how often did you use safer sex methods such as condom or dental dam? Always used / Most of the times used/ Sometimes used/ Rarely used/ Never used/ Not applicable (if sexually inactive).

19- Did you receive any sex Education during the high school (Year 7-12)? Yes/ No/ Unsure

   a- Did you find the information you received useful? I found it very useful / I found it somewhat useful/ I did not find it useful.

   b- Do you remember what sex education program has been taught? Yes/ No/ Unsure

c- If you remember, what was the sex education program called: Teach it like it is (SHine SA)/Made in the Image of God / be READY/ The Rite Journey/ Others (Specify)

20- Did you receive any education on sexually transmitted infections (STIs) during your high school (Year 7-12)? Yes/ No/ Unsure

a- If yes, did you find the information useful? I found it very useful/ I found it somewhat useful/ I did not find it useful

21- Did you receive any education on contraception during your high school (Year 7-12)? Yes/ No/ Unsure

a- If yes, did you find the information useful? I found it very useful/ I found it somewhat useful/ I did not find it useful

22- How would you rate your current knowledge of contraception?

Very Good – I am very knowledgeable

Good – I know a lot but there are things I am unsure of

Ok – I know somethings but there many things I am unsure of

Quite poor – I am quite unsure about this topic

Very poor – I am very unsure about this topic

23- How would you rate your current knowledge of pregnancy?

Very Good – I am very knowledgeable

Good – I know a lot but there are things I am unsure of

Ok – I know somethings but there many things I am unsure of

Quite poor – I am quite unsure about this topic

Very poor – I am very unsure about this topic

24- Have you ever attended a family planning clinic, sexual health clinic or your own GP for advice STI testing? Yes /No/Unsure

25- Have you ever attended a family planning clinic, sexual health clinic or your own GP for advice about STIs? Yes/ No/ Unsure

26- From which of the following were you aware you could receive an STI test: Clinic 275 / SAMESH (SA Mobilisation and Empowerment for sexual Health) / SHine SA/ Health Services: such as your GP/ HIV PEP/ None

27- Which types of contraception have you used within the last 6 Months? Condoms/ Oral contraceptive pill/ IUD/ Natural family planning/ Withdrawal method/ implanted contraceptive/ Dental dam/None/ Not applicable/ Other

28- If you ever had sex without a condom or dental dam, please give some reasons: We used other forms of contraception (e.g. pill)/ We got carried away in the heat of the moment/We did not have access to condoms/ We were of the same gender so there was no pregnancy risk/ We are trying to get pregnant/ Due to alcohol or drug consumption condoms were ignored/ Not Applicable/ Other:

29- If you ever had sex with a condom or dental dam please give some reasons: Chief method of contraception/ Backup method of contraception/ Prevent transmission of STIs / Never/ Not applicable/ Other

Section: II Safer Sex

The researcher defines partner as a girlfriend, boyfriend, wife, husband, sex worker.

Attitude:

Overall, I think that using safer sex method, such as condom or dental dam, every time I have sex with my partner in the next 6 months is:

1- Harmful 1 2 3 4 5 6 7 Beneficial

2- Unpleasant 1 2 3 4 5 6 7 Pleasant

3- Bad practice 1 2 3 4 5 6 7 Good practice

4- The wrong thing to do 1 2 3 4 5 6 7 The right thing to do

5- Ruining the heat of the moment 1 2 3 4 5 6 7 Not Ruining the heat of the moment

Subjective norms:

6- People who are important to me think that I should use safer sex method, such as condom or dental dam, every time I have sex with my partner in the next 6 months.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

7- I feel that I am under social pressure from people, who are in my life, to use safer sex method, such as condom or dental dam, every time I have sex with my partner in the next 6 months.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

8- It is expected of me from the people who are important to me, that I use safer sex method, such as condom or dental dam, every time I have sex with my partner in the next 6 months.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

Perceived behavioural control:

9- The decision to use a safer sex method every time I have sex with my partner in the next 6 months is beyond my control.

Strongly Disagree 1 2 3 4 5 6 7 Strongly Agree

10- How confident are you that you could suggest using a condom or dental dam, every time you have sex with your partner, even if you were afraid that your partner would reject you in the next 6 months?

Extremely unconfident 1 2 3 4 5 6 7 Extremely Confident

11- How confident do you feel in your ability to put on a condom or dental dam, every time you have sex, without breaking the sexual mood with your partner in the next 6 months?

Extremely unconfident 1 2 3 4 5 6 7 Extremely Confident

12- How confident do you feel in your ability to buy condoms or dental dams, without feeling embarrassed to prepare for sex with your partner in the next 6 months?

Extremely unconfident 1 2 3 4 5 6 7 Extremely Confident

13- How confident do you feel in your ability to discuss using a condom or dental dam, with your partner every time before you will have sex in the next 6 months?

Extremely unconfident 1 2 3 4 5 6 7 Extremely Confident

14- How confident do you feel in your ability to use a condom or dental dam, correctly on yourself or your partner every time you will have sex in the next 6 months?

Extremely unconfident 1 2 3 4 5 6 7 Extremely Confident

15- How confident do you feel in your ability to use a condom or dental dam with your partner even after you have been intoxicated by alcohol or drug in the next 6 months?

Extremely unconfident 1 2 3 4 5 6 7 Extremely Confident

Generalised intention:

16- I intend to use safer sex method, such as condom or dental dam, every time I have sex with my partner in the next 6 months.

Strongly disagree 1 2 3 4 5 6 7 Strongly Agree

17- I intend to try persuading my partner to use safer sex method, such as condom or dental dam, every time we have sex in the next 6 months.

Strongly disagree 1 2 3 4 5 6 7 Strongly Agree

18- I intend to keep safer sex method, such as condom or dental dam, handy every time I have sex with my partner in the next 6 months.

Strongly disagree 1 2 3 4 5 6 7 Strongly Agree

19- I intend to use safer sex method, such as condom or dental dam, every time I have sex with a new partner in the next 6 months.

Strongly disagree 1 2 3 4 5 6 7 Strongly Agree

20- I intend to stop and ask for the use of safer sex method, such as condom or dental dam before having sex and even in the heat of the moment every time I have sex with my partner in the next 6 months.

Strongly disagree 1 2 3 4 5 6 7 Strongly Agree

21- "Could you please tell us about the clarity of the questions? Was it hard to complete? Any suggestions?".

THANK YOU FOR COMPLETING THIS QUESTIONNAIRE.

9.3 Flyer for the Main Study: Let's Talk About Safer Sex

School of Education
Sturt Road, Bedford park, SA 5042
GPO Box 2100
Adelaide SA 5001
Tel:08 2015584
www.flinders.edu.au
CRICOS Provider No. 00114A

Let's Talk About Safer Sex

This research project aims to understand more deeply the factors influencing safer sex decisions by investigating the safer sex experiences of South Australian young people. In particular it explores the influence of cultural background and any prior experiences of sex education on your safer sex decisions.

You will be asked personal questions about your attitudes, perceived behavioural beliefs and norms that may have an impact on your intentions towards your safer sex decisions. Also, you will be asked questions about your sexual life and substance use, such as drinking alcohol and using illicit drugs in order understand deeply the effect of these factors on safer sex decisions.

Selection Criteria:

- Must be aged between 18 and 24 years;
- Who live in and completed their high school education (Years 7-12) in South Australia.

The survey is available online at the URL below and it is expected to take approximately 30 minutes to complete.

https://www.surveymonkey.com/r/F2W9VYC

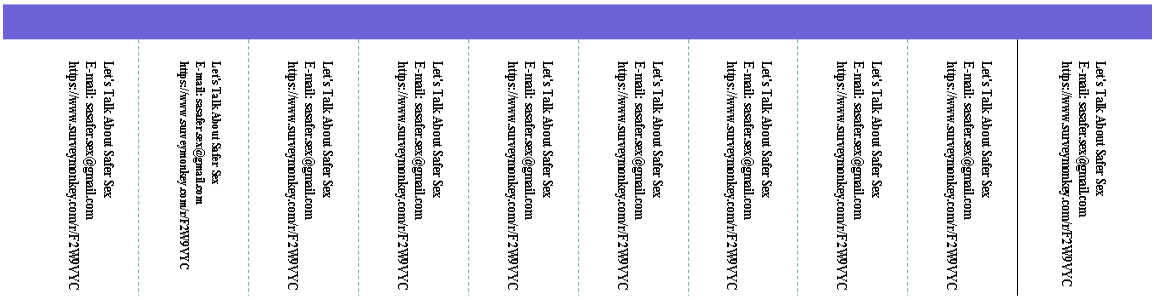
To register your interest in the second phase of the study or for further information please contact:

Rowaida Sleem

Email: sasafer.sex@gmail.com

Facebook: @LetsTalkSaferSex

This research has been approved by the Flinders University Social and Behavioural Research Ethics Committee (Project Number 7549).



9.4 **Permission Letters**

9.4.1 **SHine SA**

School of Education
Sturt Road, Bedford Park, SA 5042
GPO Box 2100
Adelaide SA 5001
Tel: 08 2015584
Rowaida.sleem@flinders.edu.au
www.flinders.edu.au

PERMISSION LETTER

Dear,

I would like to take this opportunity to introduce myself and the research I am conducting titled: *Safer sex decisions of South Australian young people and the influence of cultural background and previous sex education*. I would like to invite SHine SA clients to participate in this research. This research project aims to understand more deeply the factors influencing safer sex decisions by investigating the safer sex experiences of South Australian young people. In particular it explores the influence of cultural background and any prior experiences of sex education on your safer sex decisions.

The selection criteria for this study will include South Australian young people who consider themselves sexually active or inactive from a range of sexual orientations, who live and had completed their high school education (year 7-12) in SA and are aged between 18-24 years.

I am writing to seek your permission to contact your clients who meet the above selection criteria to invite participation in the study. The participants will be recruited between August and the end of October 2017 either by posting leaflets in SHine SA clinics with the questionnaire link, a research project Facebook page and a barcode or via posting the online questionnaire link on your Facebook page. At the end of the questionnaire, there will be a question asking whether they would be willing to participate in a face-to-face or phone interview. The face -to-face interviews will be conducted in Flinders University teaching spaces or library between October and November 2017. Be assured that neither SHine SA nor participants will be named in the publications arising from this research. Any information provided will be treated in the strictest confidence. This research has been approved by the Flinders University Social and Behavioural Ethics Committee (Project number 7549).

For more information regarding ethical approval of the project the Executive Officer of the Committee can be contacted by telephone on 8201 3116, by fax on 8201 2035 or by email human.researchethics@flinders.edu.au

The benefits of participating in this research will include:

- Assisting in the investigation of the influence of cultural background and previous sex education on South Australian young people's safer sex decisions;
- Assisting in the identification of the mediator and moderator factors of South Australian young people's safer sex decisions and if there is any factor difference between young people who consider themselves sexually active or inactive;
- Assisting in the investigation of lived experiences of South Australian young people safer sex.

If you are willing to provide permission for me to invite participation, could you please reply to this email detailing your permission.

Thank you and I look forward to hearing from you soon.

Yours sincerely,
Rowaida Sleem
School of Education
Flinders University

9.4.2 **SA MESH**

School of Education
Sturt Road, Bedford Park, SA 5042
GPO Box 2100
Adelaide SA 5001
Tel: 08 2015584
Rowaida.sleem@flinders.edu.au
www.flinders.edu.au

PERMISSION LETTER

Dear,

I would like to take this opportunity to introduce myself and the research I am conducting titled: *Safer sex decisions of South Australian young people and the influence of cultural background and previous sex education.* I would like to invite SAMESH to participate in this research. This research project aims to understand more deeply the factors influencing safer sex decisions by investigating the safer sex experiences of South Australian young people. In particular it explores the influence of cultural background and any prior experiences of sex education on your safer sex decisions.

The selection criteria for this study will include South Australian young people who consider themselves sexually active or inactive from a range of sexual orientations, who live and completed their high school education (year 7-12) in SA and are aged between 18-24 years.

I am writing to seek your permission to contact your clients who meet the above selection criteria to invite participation in the study. The participants will be recruited between August and the end of October 2017 by posting the online questionnaire link on your Facebook page. At the end of the questionnaire, there will be a question asking whether they would be willing to participate in a face-to-face or phone interview. The face -to-face interviews will be conducted in Flinders University teaching spaces or library between October and November 2017. Be assured that neither SAMESH Facebook page nor participants will be named in the publications arising from this research. Any information provided will be treated in the strictest confidence. This research has been approved by the Flinders University Social and Behavioural Ethics Committee (Project number 7549).

For more information regarding ethical approval of the project the Executive Officer of the Committee can be contacted by telephone on 8201 3116, by fax on 8201 2035 or by email human.researchethics@flinders.edu.au

The benefits of participating in this research will include:

- Assisting in the investigation of the influence of cultural background and previous sex education on South Australian young people's safer sex decisions;
- Assisting in the identification of the mediator and moderator factors of South Australian young people's safer sex decisions and if there is any factor difference between young people who consider themselves sexually active or inactive;
- Assisting in the investigation of lived experiences of South Australian young people safer sex.

If you are willing to provide permission for me to invite participation, could you please reply to this email detailing your permission.

Thank you and I look forward to hearing from you soon.

Yours sincerely,
Rowaida Sleem
School of Education
Flinders University

9.4.3 **Genesis Pregnancy Support Inc.**

School of Education
Sturt Road, Bedford Park, SA 5042
GPO Box 2100
Adelaide SA 5001
Tel: 08 2015584
Rowaida.sleem@flinders.edu.au
www.flinders.edu.au

PERMISSION LETTER

Dear,

I would like to take this opportunity to introduce myself and the research I am conducting titled: *Safer sex decisions of South Australian young people and the influence of cultural background and previous sex education.* I would like to invite Genesis clients to participate in this research. This research project aims to understand more deeply the factors influencing safer sex decisions by investigating the safer sex experiences of South Australian young people. In particular it explores the influence of cultural background and any prior experiences of sex education on your safer sex decisions.

The selection criteria for this study will include South Australian young people who consider themselves sexually active or inactive from a range of sexual orientations, who live and had completed their high school education (year 7-12) in SA and are aged between 18-24 years.

I am writing to seek your permission to contact your clients who meet the above selection criteria to invite participation in the study. The participants will be recruited between August and the end of October 2017 either by posting leaflets in GENESIS Pregnancy Support Inc. clinic with the questionnaire link, a research project Facebook page and a barcode or via posting the online questionnaire link on your Facebook page. At the end of the questionnaire, there will be a question asking whether they would be willing to participate in a face-to-face or phone interview. The face -to-face interviews will be conducted in Flinders University teaching spaces or library between October and November 2017. Be assured that neither GENESIS Clinic nor participants will be named in the publications arising from this research. Any information provided will be treated in the strictest confidence. This research has

been approved by the Flinders University Social and Behavioural Ethics Committee (Project number 7549).
For more information regarding ethical approval of the project the Executive Officer of the Committee can be contacted by telephone on 8201 3116, by fax on 8201 2035 or by email human.researchethics@flinders.edu.au

The benefits of participating in this research will include:

- Assisting in the investigation of the influence of cultural background and previous sex education on South Australian young people's safer sex decisions;
- Assisting in the identification of the mediator and moderator factors of South Australian young people's safer sex decisions and if there is any factor difference between young people who consider themselves sexually active or inactive;
- Assisting in the investigation of lived experiences of South Australian young people safer sex.

If you are willing to provide permission for me to invite participation, could you please reply to this email detailing your permission.

Thank you and I look forward to hearing from you soon.

Yours sincerely,
Rowaida Sleem
School of Education
Flinders University

9.5 **Flyer for the Main Study Posted at Genesis Pregnancy Support**

School of Education
Sturt Road, Bedford park, SA 5042
GPO Box 2100
Adelaide SA 5001
Tel:08 2015584
www.flinders.edu.au
CRICOS Provider No. 00114A

Let's Talk About Safe(r) Sex

"Are you a South Australian young person who considers himself/ herself/ themself as either sexually active or inactive, who lives and completed his/ her/ their high school education in South Australia and is aged between 18 and 24 years?

If so, we would love to hear from you!

We are conducting a research project about sexual activity decisions of South Australian young people and the influence of cultural background and previous sex education on these decisions. This research project aims to understand more deeply the factors influencing sexual activity decisions by investigating the 'unsafe sex vs safer sex vs safe sex' experiences of South Australian young people. In particular it explores the influence of cultural background and any prior experiences of sex education on your sexual activity decisions.

The survey is available online at the URL below and it is expected to take approximately 30 minutes to complete.

https://www.surveymonkey.com/r/F2W9VYC

To register your interest in the second phase of the study or for further information please contact:

Rowaida Sleem

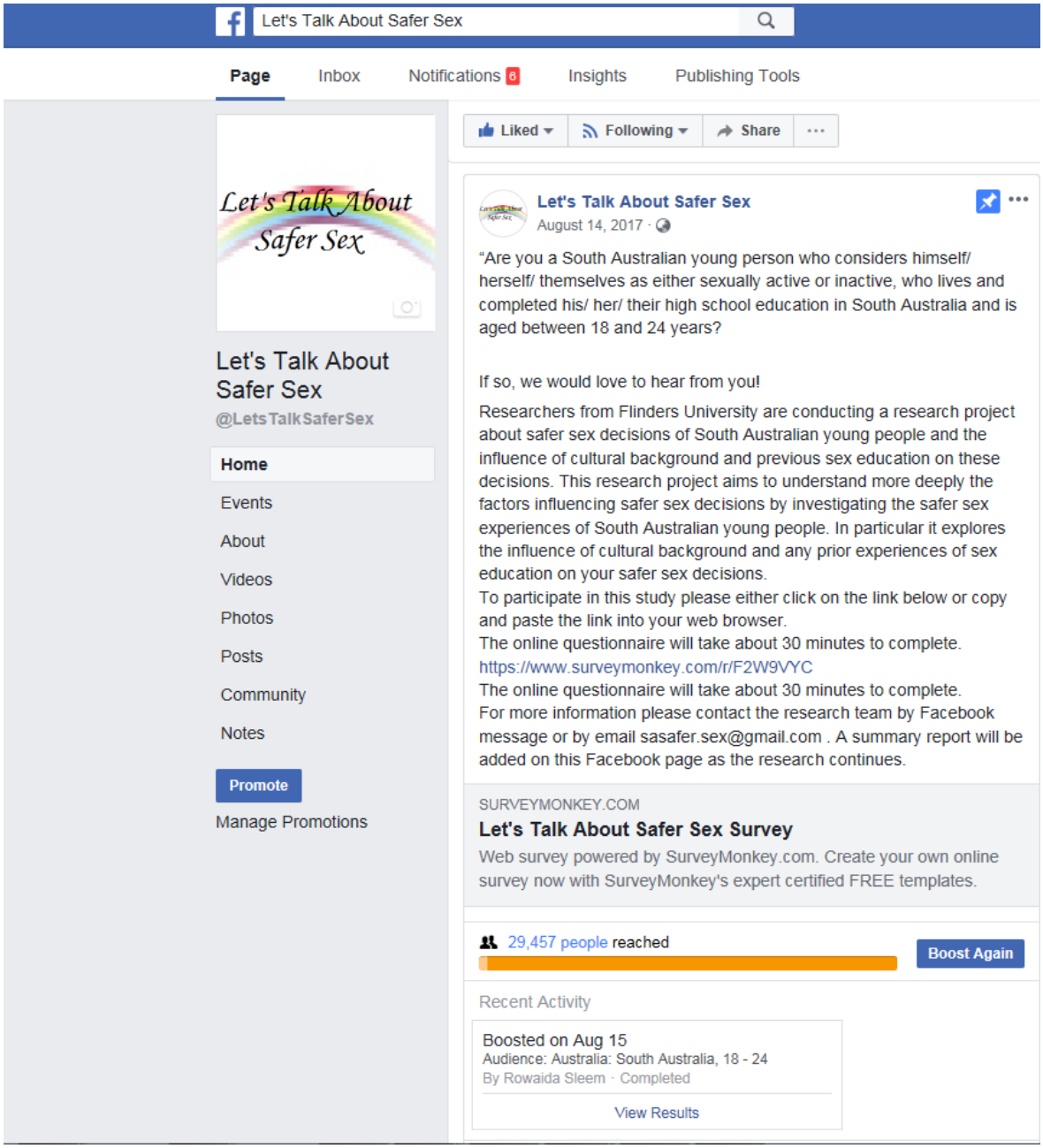
Email: sasafer.sex@gmail.com

Facebook: @LetsTalkSaferSex

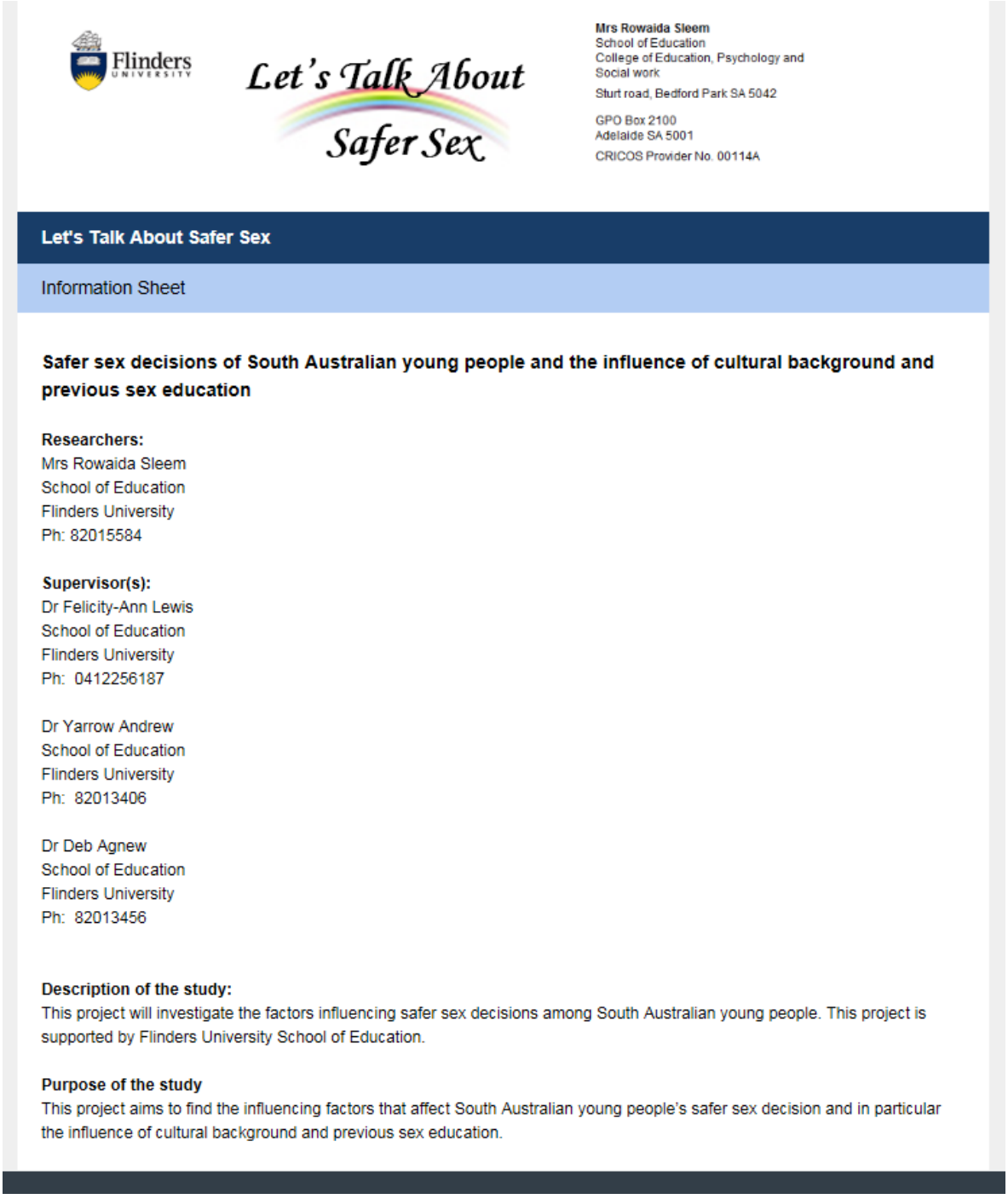
This research has been approved by the Flinders University Social and Behavioural Research Ethics Committee (Project Number 7549).

Let's Talk About Safe(r) Sex
E-mail: sasafer.sex@gmail.com
https://www.surveymonkey.com/r/F2W9VYC

9.6 **Facebook Ads**



9.7 **Main Study: Information sheet, Consent Form and the Questionnaire**



Flinders UNIVERSITY

Let's Talk About Safer Sex

Mrs Rowaida Sleem
School of Education
College of Education, Psychology and Social work
Sturt road, Bedford Park SA 5042
GPO Box 2100
Adelaide SA 5001
CRICOS Provider No. 00114A

Let's Talk About Safer Sex

Information Sheet

Safer sex decisions of South Australian young people and the influence of cultural background and previous sex education

Researchers:
Mrs Rowaida Sleem
School of Education
Flinders University
Ph: 82015584

Supervisor(s):
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Description of the study:
This project will investigate the factors influencing safer sex decisions among South Australian young people. This project is supported by Flinders University School of Education.

Purpose of the study
This project aims to find the influencing factors that affect South Australian young people's safer sex decision and in particular the influence of cultural background and previous sex education.

Let's Talk About Safer Sex

Information Sheet (Cont.)

The research objectives

1- To understand and investigate the influence of cultural background and sex education on South Australian young people's safer sex decisions and subsequent behaviors.

2- To identify the factors behind safer sex decisions among South Australian young people and discover whether there are any differences in the factors influencing safer sex decisions between young people who consider themselves sexually active or inactive.

3- To investigate the safer sex experiences of South Australian young people.

What will I be asked to do?

The online questionnaire will include personal questions about your attitudes, perceived behavioral beliefs and subjective norms that may impact on their intentions towards safer sex. Also, it will include personal questions about your sexual life and substance use such as alcohol and drugs to more deeply understand the effect of these factors on safer sex decisions. This survey will take about 30 minutes to complete. At the end of the questionnaire you will be asked if you will be willing to take a part in 60 minutes follow-up interview. Thus you can register your interest by sending an email to sasafer.sex@gmail.com . The interview will ask more detailed personal questions about your safer sex decisions and sexual life. The collected data will be securely stored as a computer file, statistically analyzed and then destroyed after 5 years. These data will be used to develop interview questions for the next phase of the study, which you will be invited to participate in.

What benefit will I gain from being involved in this study?

Participants may not benefit directly from participation in this research. However, your thoughts, experience and your ethnic and cultural background will assist in the investigation of the influence of cultural background and previous sex education on your safer sex decisions. It will also assist in the investigation of lived experiences of South Australian young people's safer sex decisions. The outcomes of this study may improve your health and others South Australian young people through better awareness of safer sex practices by developing health promotions resources and strategies.

Will I be identifiable by being involved in this study?

Be assured that any information provided will be treated in the strictest confidence and none of the participants will be individually identifiable in the resulting thesis, report or other publications, and that the confidentiality of the material will be respected and maintained. The online questionnaire will be anonymous and you will not be asked to provide your name, student ID number or any contact details at any stage.

Are there any risks or discomforts if I am involved?

It is acknowledged that this study concerns topics of a sensitive nature. Therefore, it is possible that the questions contained in the questionnaire may cause participants to become emotionally distressed, embarrassed or anxious when recalling their lived experiences or thinking about their future sexual activity. However, you can exit the online questionnaire if you feel uncomfortable and the data will not be submitted and counted. If you feel emotionally distressed at any time during or after participating in this questionnaire, support is available by calling Lifeline Adelaide 24/7 on 131114, Flinders counseling service on 082012118, SHine SA Sexual Healthline on 1300 883 793 or HIV PEP Hotline on 1800 022 226.

Let's Talk About Safer Sex

Mrs Rowaida Sleem
School of Education
College of Education, Psychology and Social work
Sturt road, Bedford Park SA 5042
GPO Box 2100
Adelaide SA 5001
CRICOS Provider No. 00114A

Let's Talk About Safer Sex

Information Sheet (Cont.)

How do I agree to participate?
Participation is voluntary. It is required to obtain your consent by completing the online click consent form before you start. Please complete the Consent Form on the next page and then start the questionnaire by clicking on the NEXT button below the form. At the end of the questionnaire, you will be asked to click on the DONE button in order to submit your answers. We encourage you to complete all sections of the survey as only completed questionnaires will be conisdered and counted.

How will I receive feedback?
If you are interested, a summary report will be posted on the Facebook page of the research (@LetsTalkAboutSaferSex).

Thank you for taking the time to read this information sheet and we hope that you will accept our invitation to be involved.

This research project has been approved by the Flinders University Social and Behavioural Research Ethics Committee (Project number 7549). For more information regarding ethical approval of the project the Executive Officer of the Committee can be contacted by telephone on 8201 3116, by fax on 8201 2035 or by email human.researchethics@flinders.edu.

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Let's Talk About Safer Sex

Consent Form

1. You are invited to take a part in this voluntary and anonymous research survey about "Safer sex decisions of South Australian young people and the influence of cultural background and previous sex education." Completing this online questionnaire will require approximately 30 minutes. Taking part in this study is completely voluntary.

Please complete the consent form below and then start the online questionnaire by clicking on the NEXT button below.

Declaration by the participants:

- [ ] I have read the participants 'Information Sheet' or someone has read it to me in a language that I understand;
- [ ] I am aware that I can download a copy of the 'Information Sheet' and this 'consent form';
- [ ] I understand the purpose and risks of the research described in this project;
- [ ] I understand that my responses will be kept strictly confidential, and digital data will be stored in secure computer files;
- [ ] I understand that I may not directly benefit from taking part in this project;
- [ ] I freely agree to participate in this research study as described and understand that I am free to withdraw at any time during the project and withdrawal will not affect my relationship with any of the named organizations an/or research team members;
- [ ] I provide my consent for the information collected about me to be used for the purpose of this research study only.

8%

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Let's Talk About Safer Sex

Section: I

If you experience any distress during or after participating in the survey, you can access support by calling Lifeline Adelaide 24/7 on 13 11 14, Flinders counseling service on 082012118, SHine SA sexual Health line on 1300 883 793 or HIV PEP Hotline on 1800 022 226.

Please choose the option(s) that best reflect(s) your response to each of the following statements in sections I and II.

Note: The researcher defines "partner" as anyone that you engage in sexual activity with such as a casual partner, girlfriend, boyfriend, wife, husband or sex worker.
N/A : refers to Not Applicable .
By using the same link and mobile/computer device, you can complete a portion of this survey and return later on to finish the rest.

2. Do you consider yourself as .....?

Sexually Active	Sexually Inactive
○	○

Unsure

3. Have you done your high school education (years 7-12) in South Australia?

YES	NO
○	○

10%

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Let's Talk About Safer Sex

* **4. How old are you?**

12%

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Section 1

1- Do you consider yourself as …? ☐Sexually active ☐Sexually inactive ☐ Unsure (Please Specify)

2- Have you completed your high school education (Years 7-12) in South Australia? ☐Yes ☐No. If No was selected, then; participants will exit the survey (Thank you for participating).

OTHERWISE

3- How old are you? Drop List: >18, 18, 19, 20, 21, 22, 23, 24, >24. If >18 or <24 is selected, participants will exit the survey. (Thank you for participating).

OTHERWISE

4- Relationship Status: ☐ Monogamous relationship for less than three months ☐ Monogamous relationship for three months or more ☐ Dating and non-monogamous relationships ☐ Not in any intimate relationship

5- How many different sex partners did you have in the last 6 months? ☐ 1 partner ☐ 2 partners ☐ 3 partners ☐ 4 partners ☐ 5 Partners ☐ 6 partners ☐ More than 6 ☐ None ☐N/A

6- In which country were you born? Please Specify.

7- How would you describe your sexual orientation? Heterosexual Male ☐ Heterosexual Female ☐ Homosexual Male ☐ Lesbian ☐ Bisexual Male ☐ Bisexual Female ☐ Prefer not to say ☐ Other (please describe).

8- Race/ethnicity: ☐ Indigenous Australian ☐ Anglo-Saxon ☐ Caucasian ☐ African America ☐ Hispanic/ Latino☐ Indian ☐ Asian/Pacific Islander ☐Others (Please Specify).

9- Religion: ☐ Christian ☐ Buddhist ☐ Muslim ☐ Hinduist ☐ Sikhist ☐ Baha'i ☐ Australian Aboriginal Traditional Religions ☐ Jewish ☐ Spiritualist ☐ Wiccan ☐ No religion ☐ I don't wish to say ☐ Others (Please Specify).

If participants selected any option except NO religion, they would go to question 8a.

A- How important is your religion to you? ☐Very important ☐ Quite important ☐ Not at all important☐ Not Applicable

10- When you were growing up, did your parents/carers talk to you about using safer sex methods such as condom use or dental dam use before you started having sex? ☐ All the Times ☐ Few Times ☐Once or Twice ☐ Never

11- Did your parents/cares talk to you about using safer sex methods such as condom use or dental dam use after you started having sex? ☐All the Times ☐ Few times ☐ Once or twice ☐ Never ☐ Not applicable

12- Which types of contraception have you used within the last 6 Months? Condoms/ Oral contraceptive pill/ IUD/ Natural family planning/ Withdrawal method/ Implanted contraceptive/ Dental Dam/ None/ Not applicable/ Other (Please Specify)

13- If you ever had sex without a condom or dental dam, please give some reasons (tick all that apply): We used other forms of contraception (e.g. pill)/ We got carried away in the heat of the moment/We did not have access to condoms/ We were of the same gender so there was no pregnancy risk/ We are trying to get pregnant/ Due to alcohol or drug consumption condoms were ignored/ Stealthing/ It was rape/Not Applicable/ Other (please specify)

14- If you ever had sex with a condom or dental dam please give some reasons (all that apply): Chief method of contraception/ Backup method of contraception/ Prevent transmission of STIs/ Never/ Not applicable/ Other (please specify)

15- In the last 6 months, how often did you use safer sex methods such as condom or dental dam? Always used / Most of the times used/ Sometimes used/ Rarely used/ Never used/ Not applicable (if sexually inactive)

Section 2: Strongly Disagree to Strongly Agree

1. If I were going to have sex, I would take precautions to reduce my risk of STIs.
2. I would try to use a condom/dental dam when I had sex.
3. I would avoid using condoms/dental dams if at all possible.
4. "Safer" sex is a habit for me.
5. I intend to follow "safer sex" guidelines within the next year.
6. I am determined to practice "safer" sex.
7. If I were going to have sex in the next year, I would use condoms/dental dams.
8. The proper use of a condom/dental dam could enhance sexual pleasure.
9. Condoms/dental dams ruin the natural sex act.
10. Condoms/dental dams interfere with romance.
11. Generally, I am in favour of using condoms/dental dams.
12. "Safer" sex reduces the mental pleasure of sex.
13. The idea of using a condom/dental dam does not appeal to me.
14. The sensory aspects (smell, touch) of condoms/dental dams make them unpleasant.
15. With condoms/dental dams, you cannot really "give yourself over" to your partner.
16. I think "safer" sex would get boring fast.
17. Condoms/dental dams are irritating.

18. People can get the same pleasure from "safer" sex as from unprotected sex.

19. Using condoms/dental dams interrupts sex play.

20. It is a hassle to use condoms/dental dams.

21. When I think that one of my friends might have sex on a date, I ask them if they have a condom/dental dam.

22. My friends talk a lot about "safer" sex.

23. If a friend knew that I might have sex on a date, he/she would ask me if I were carrying a condom/dental dam.

24. If I thought that one of my friends had sex on a date, I would ask them if they used a condom/dental dam.

25. If a friend knew that I had sex on a date, he/she would not care if I had used a condom/dental dam or not.

26. If I had sex and I told my friends that I did not use condoms/dental dams, they would be angry or disappointed.

27. My friends and I encourage each other before dates to practise "safer" sex.

28. I am confident to use safer sex methods with my partner even under the influence of substance use.

29. The decision to use a safer sex method is beyond my control.

30. I am confident to suggest using a condom or dental dam with my partner, even if I am afraid that my partner would reject it.

31. I am confident to put on a condom or dental dam without breaking the sexual mood.

32. I am confident to buy condoms or dental dams, without feeling embarrassed.

33. I am confident to discuss condom or dental dam use, with my partner before having a sexual activity.

34. I am confident to use condom or dental dam, correctly on myself or my partner every time.

35. If my partner wanted me to have unprotected sex, I would probably "give in".

36. If my partner wanted me to participate in "risky" sex and I said that we needed to be safer, we would still probably end up having "unsafe" sex.

37. If my partner wanted me to participate in "risky" sex and I suggested a lower risk alternative, we would have the "safer" sex instead.

38. If my partner wanted me to have unprotected sex and I made some excuse to use a condom/dental dam, we would still end up having unprotected sex.

39. If a sexual partner did not want to use condoms/dental dams, we would have sex without using condoms/dental dams.

Section Three

1. Did you receive any Sex Education during the high school level Year 7-12? Yes/ No/ Unsure. If No or Unsure was Selected: Skip to next question.

   If yes was selected:

   a- Did you find the information you received useful? I found it very useful / I found it somewhat useful/ I did not find it useful.

   b- Do you remember what sex education program has been taught? Yes/ No/ Unsure

   If No or Unsure was Selected: Skip to next question.
   If yes Selected:

   c- If you remember was the sex education program called: Teach it like it is (SHine SA)/Made in the Image of God / be READY/ The Rite Journey/ Others (Specify)

2. Did you receive any education on Sexually Transmitted Infections (STIs) during your high school study? Yes/ No/ Unsure

   If No or Unsure Selected: Skip to next question

   a- If yes, did you find the information useful? I found it very useful/ I found it somewhat useful/ I did not find it useful

3. How would you rate your current knowledge of contraception?

   Very Good – I am very knowledgeable/ Good – I know a lot but there are things I am unsure of / Ok – I know some things but there many things I am unsure of / Quite poor – I am quite unsure about this topic/ Very poor – I am very unsure about this topic

4. How often in the last 6 months have you consumed alcohol? Never/ One or twice in the last 6 months/ Several times in the last 6 months/ Once or twice a month/ Every weekend/ Several times a week/ Every day/ Several times a day/ I'm a benign drinker

5. How often in the last 6 months, have you used illicit drugs? Never/ One or twice in the last 6 months/ Several times in the last 6 months/ Once or twice a month/ Every weekend/ Several times a week/ Every day/ Several times a day

6. Did you receive any education on contraception during your high school study?

   Yes/ No/ Unsure

   If No or Unsure Selected: Skip to next question

   a- If yes, did you find the information useful? I found it very useful/ I found it somewhat useful/ I did not find it useful

7. In which category does your previous high school fit? Independent school/ Lutheran School/ Christian School/ Public School /Catholic School/ Islamic School/Others (Please Specify)

8. Have you ever attended a family planning clinic, an STI clinic or your own GP for advice about STIs? Yes /No/Unsure

9. Have you ever attended a family planning clinic, an STI clinic or your own GP for STI testing? Yes/ No/ Unsure

10. What is your main source of income? Centrelink/ Parents/ Work/ Friends/ Others (Please Specify)

11. What is your fortnightly income? <400/ Between 400 & 999/ Between 1000 & 1499/ between 1500 & 1999/ >2000

12. With whom do you live? Living with both parents/ Living with either parents/ Living with my partner/ Living with my friends or housemates/ Living between my parents and partner's house/ Living alone/ Others (Please Specify)

13. Which description best describes your educational level? TAFE SA student/ Undergraduate/ Postgraduate/ High School/ Other (Please Specify)

14. What is the main language other than English spoken at home? Italian/ Greek/ Mandarin/ Vietnamese/ Cantonese/ Arabic/ German/ Polish/ Spanish/ Punjabi/ Hindi/ Not applicable (Only English) / Others (Please Specify)