Situational Variables Associated with Unsafe Sexual Behaviour in an MSM Population.

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Abstract

The current study examined the capacity of the Theory of Planned Behaviour (TPB) and the Prototype/Willingness model (P/W model) to predict intention to have unsafe sex with new and regular partners as well as frequency of unsafe sex in a sample of men who have sex with men (MSM) sample. The study also examined aspects of the sexual situation immediately prior to or during unsafe sexual intercourse (such as substance use, venue and emotional state) to determine whether there were any significant correlations and group differences. One hundred and fifty-eight male participants between the ages of 18-26 who have had sex with another male in the last nine months completed an online survey of sexual habits, TPB and P/W model variables. With the exception of prototypes, the results showed significant group difference in terms of TPB and P/W model variables between risk groups. Furthermore, there was no significant difference between models in predictive capacity in terms of either intention or frequency of unsafe sex. The results of the study suggested participants were generally only having unsafe sex with regular partners, that in older samples it may be more parsimonious to use the TPB than P/W model and that it is important to measure TPB variables in terms of both new and regular partners for increased accuracy and greater applicability in terms of HIV/STI interventions.

Keywords   unsafe sex, condom use, Theory of Planned Behaviour, Prototype/Willingness model, intention, MSM, sexual orientation, situation.

1. Introduction.

1.1 *Overview*

In the late nineteen seventies and early eighties sections of the homosexual community began to experience an array of rare, immune-related conditions including Kaposi's sarcoma and pneumonia, often concurrently (Andrew, 2008; Jaffe, 2008; Kallings, 2008). Although these conditions tended to cluster within the gay male community they later began to be detected amongst other groups such as haemophilia sufferers, blood transfusion recipients and young Haitian immigrants (Jaffe, 2008). The expansion of infected individuals beyond the men who have sex with men (MSM) community raised concerns regarding the accuracy of the terminology for the new disease (GRID or gay related immune deficiency) and led to the adoption of the name Acquired Immune Deficiency Syndrome (AIDS: Andrew, 2008), and eventually the naming of its infectious agent, the Human Immunodeficiency Virus (HIV).

Government and community led efforts to encourage safe sexual practices eventually led to decreasing infection rates in the Western world. Limitations on who was able to donate blood (and eventually the testing of blood) also slowed the spread of HIV, and the development of new anti-retroviral drugs allowed those who were already infected to live longer. However, recent data, suggests that an upward trend in HIV and other STI infections is occurring in areas such as Australasia,

America and parts of Europe (Andrew, 2008) highlighting the need for ongoing HIV/AIDS education and study in these countries as well as in the developing world.

The current study focuses on the antecedents of unsafe sexual behaviour, it asks if it is sufficient to use intention to predict actual behaviour (Ajzen, 1995) or is unsafe sexual behaviour due, at least in part, to a reactive process which requires additional variables (e.g. willingness and prototypes) to be measured in order to better predict unsafe sex (Gibbons, Gerrard, Blanton & Russell, 1998). The study will also examine which variables in each theory are most predictive of unsafe sexual behaviour. The study will also assess whether various aspects of the situation in which unsafe sexual activity occurs, such as drug or alcohol use at the time of unsafe intercourse, are correlated with unsafe sexual activity or with predictors of unsafe sex.

The study will begin with an examination of the current prevalence of HIV/AIDS (in terms of global incidence and incidence in westernised nations), followed by an examination of two key theories in behaviour prediction, the Theory of Planned Behaviour and Prototype/Willingness Model. Finally the proposed situational variables will be outlined before a description of the current study, results and conclusions.

1.2 Prevalence.

1.2.1 Worldwide prevalence

It is estimated that between 30.6 million and 36.1 million people were living with the HIV virus worldwide at the end of 2007. During 2007, there were 2.5 million new HIV infections and 2.1 million people died from AIDS related causes (Joint United Nations Programme on HIV/AIDS & World Health Organization, 2007). The vast majority of cases occurred in sub-Saharan Africa where 67% of worldwide cases and 72% of AIDS deaths occurred in 2007 (Joint United Nations Programme on HIV/AIDS & World Health Organization, 2007).

Although levels remain high, infection rates in sub-Saharan African countries have begun to stabilise and in some cases decline, however rates of other STIs (which can increase the likelihood of concurrent infection) continue to climb worldwide.

It is also important to note the distinction between new HIV infections and the number of individuals living with HIV. Since the advent of ART (antiretroviral therapy) and the more recently developed HAART (highly active antiretroviral therapy, which typically combines three or more antiviral drugs) individuals infected with HIV/AIDS are able to live for considerably longer periods. As such, measurement of the number of people currently infected does not give a complete picture of HIV/AIDS statistics at present as some of these people may have been infected a decade or more ago and this says little about current new infection rates. In this study both statistics; new infection and number of people currently infected will be discussed.

1.2.2 Prevalence in the USA

In 2008 the Centers for Disease Control and Prevention (CDC: USA) estimated (based on data from the 33 states with long-term confidential name-based HIV reporting) that approximately 1.23 million people in the United States were living with either diagnosed or undiagnosed HIV at the end of 2007 (CDC, 2008; Hall et al, 2008). The rate of new HIV infections in the USA reached a low point in the early 1990's with approximately 49,000 infections per year, but by the end of the 1990's the infection rate had increased again to approximately 58,000 new infections per year. In more recent years (2000-2006) the infection rate has stabilised at around 56,300 infections per year (Hall et al, 2008). Meanwhile, other sexually transmitted infections (STI) are also increasing in frequency. Gonorrhoea infections in the United States have increased 5.5% between 2005 and 2006 and the rate of syphilis infection has increased 13.8% over the same period (CDC, 2006).

1.2.3 New Zealand prevalence

In the year 2007, 195 new HIV infections were reported in New Zealand, compared to 204 in 2006 and 218 in 2005 (NZ Ministry of Health, 2008). These figures brought the total number of infections since 1985 to 2,872. New cases of syphilis however rose in 2007 with 71 cases (compared to 68 in 2006) and gonorrhoea also increased to 925 from 802 in 2006 (NZ Ministry of Health, 2008).

1.2.4 Prevalence in Australia

In Australia there has been a steady increase in HIV infection rates between 1999 (718 reported new infections) to 2007 (1051 reported new infections). Syphilis substantially increased from 872 new infections in 2006 to 1,379 new infections in 2007 although gonorrhoea decreased from 8,570 new cases in 2006 to 7,604 new cases in 2007 (Wilson, Hoare, Regan, Wand & Law, 2008).

1.2.5 Prevalence in the United Kingdom

In the United Kingdom estimates placed the number of people infected with HIV in 2006 at approximately 73,000 including an estimated 21,600 individuals who are unaware of their HIV-infected status (Health Protection Agency, 2007). The rate of infection for 2006 is similar to that of 2005 (7,800 to 7,950 new infections) indicating that there may be some levelling off in HIV infection rates underway. Gonorrhoea infection rates have been consistently decreasing over time with 19,007 cases reported in 2006 in the UK. Rates of infection for syphilis, however have continued to rise from 301 new cases in 1997 to 3702 new infections in 2006 (Health Protection Agency, 2007).

1.2.6 Prevalence in the MSM community

Although new infection rates appear to be stabilising in some countrie and increases in the number of people living with HIV is partially attributable to treatment outcomes; some high risk populations are still seeing increases in infection rates.

Of the 56,300 new HIV infections in the United States for the year 2006, 53 percent occurred in the MSM population (Hall et al, 2008). In the 33 US states which require name-based HIV case reporting there has been an overall increase in HIV/AIDS diagnoses of 8.6% between 2001 and 2006 within the MSM population. New Zealand reports similar statistics, with 45.5% of new infections in 2007 occurring within the MSM population (NZ Ministry of Health, 2008). In Australia the most significant population in terms of HIV infection was again MSM with 75% of the 1051 infections for 2007 occurring within this group (Wilson et al, 2008). In the UK, out of an estimated 73,000 currently infected individuals, MSM are estimated to make up 30,100 (or approximately 41%) of that number (Health Protection Agency, 2007).

Given the disproportionate level of infection within the MSM community it is evident that research needs to be done to determine the most effective points of intervention within that community.

1.2.7 Concurrent infection

Of particular concern is the increased likelihood of HIV infection in those who already suffer from an existing STI, especially gonorrhoea (CDC, 2006; Wilson et al, 2008). Mathematical modelling undertaken by the National Centre in HIV Epidemiology and Clinical Research (NCHECR) in Australia suggests that a significant proportion of the increase in annual infection rates between 1999-2006, is attributable to increased HIV susceptibility in individuals with existing STIs, as opposed to solely due to increases in unsafe sexual behaviour (Wilson et al, 2008).

1.2.8 Rationale

Although concurrent STI/HIV infection is clearly a growing issue, the vast number of both STI and HIV infections could be prevented with a single step: namely, safe sexual behaviour. Clearly the current preventative campaigns are not having as significant an effect as desired and steps need to be taken to reduce the likelihood of infection for individuals who are at substantive risk. A major step in reducing HIV/AIDS and STI infections is developing better-targeted, more effective safe sex campaigns and examining potential avenues for behavioural interventions in those who show consistent issues with condom use.

1.3 Theory of Planned Behaviour

1.3.1 Progression from Theory of Reasoned Action to Theory of Planned Behaviour.

At present, the vast majority of safe/unsafe sexual behaviour literature is based on Ajzen's Theory of Planned Behaviour (TPB), which suggests that behaviour is planned, rational and intentional. The TPB was developed from the earlier Theory of Reasoned Action (TRA: Ajzen & Fishbein, 1975; Ajzen & Fishbein, 1980) according to which the "proximal determinant" (Bennett & Bozionelos, 2000) of behaviour is the intention variable (i.e. that the primary antecedent of a behaviour is intention to perform that behaviour) and that behaviour is under the volitional control of an individual (Ajzen, 1985; Bennett & Bozionelos, 2000; Fishbein, Chan, O'Reilley, Schnell, Wood, Beeker & Cohn, 1993; Reinecke, Schmidt & Ajzen 1996).

It is proposed that this intention variable is derived from two processes, whereby an individual: a) considers their own personal attitudes towards the behaviour; and, b) takes into account relevant behavioural norms before making a decision as to whether or not they should engage in the target behaviour (Bennett & Bonzionelos, 2000; Reinecke et al., 1996).

In the first instance, the attitude towards a behaviour refers to an evaluation of the target behaviour (namely its favourability and positive or negative consequences) made by the individual (Bennett & Bozionelos, 2000; Fishbein et al, 1993; Reinecke et al., 1996). The consideration of the potential positive or negative outcomes as a result of performing or avoiding a given behaviour which make up a persons attitude towards it are known as 'behavioural beliefs' (Ajzen, 1985).

This personal determinant is used in conjunction with a more social-based determinant called the 'subjective norm'. The subjective norm variable refers specifically to how the individual believes that significant others (friends, family, co-workers, etc.) would view the behaviour and whether or not they would want the individual to engage or not engage in it; essentially, it is the social pressure to perform or not perform a given behaviour (Ajzen 1985; Fishbein et al., 1993). Beliefs regarding social pressures and social attitudes (which make up the subjective norm variable) towards a behaviour are known as 'normative beliefs' (Ajzen, 1985). Together attitudes and subjective norms are theorised to form the individual's intention to perform or not perform a target behaviour.

In reference to these behavioural and normative beliefs it is expected that where an individual has mostly positive behavioural and normative beliefs regarding a behaviour it is likely that they will perceive pressure to perform that behaviour; and where the behavioural and normative beliefs are negative it is likely that the individual will feel pressure not to perform that behaviour (Ajzen, 1985).

The high level of volitional control required under the TRA led Ajzen to extend the theory to make it more capable of predicting behaviour in a wider array of target behaviours. Ajzen suggested that in cases where individuals had only partial control (for instance where the individual requires the cooperation of others) the TRA may

not be taking all necessary factors into account (Reinecke et al., 1996).To this end, the concept of 'perceived behavioural control' was added to form the Theory of Planned Behaviour (TPB).

In the TPB behavioural control and perceived behavioural control are separate concepts, perceived behavioural control refers to an individual's perceived ability to engage or not engage in a target behaviour; however this perception may be different to what an individual is actually able to achieve. Despite actual behavioural control and perceived behavioural control being different constructs, perceived behavioural control is proposed to approximate actual behavioural control in cases where those perceptions are relatively accurate and where sufficient information exists for the individual to be able to create such a perception (Ajzen, 1991). Ajzen suggested that the perceived behavioural control measure would encompass the individual's past experience and perceived impediments to their ability to determine their own behaviour and (when applied to the TRA measures) increase the capacity to predict less volitional behaviour (Bennett & Bozionelos 2000; Reinecke et al., 1996). Where the attitude variable is defined by behavioural beliefs and the subjective norm variable is defined by normative beliefs the underlying beliefs regarding the perceived behavioural control (beliefs regarding factors which are likely to hinder or assist in the performance of a given behaviour) are known as control beliefs (Ajzen, 2002).

1.3.2 TPB and health bbehaviour.

The TPB has been adapted for use in predicting a wide array of health related behaviours (such as smoking, drinking and unsafe sex) and has largely been considered a success. In one meta-analysis of 185 independent studies published up to 1997, Armitage and Conner (2001) reported that in terms of intentions the TPB was able to account for (on average) 39% of variance and 27% of actual behaviour. There were also differences in the amount of variance the TPB could explain depending on how the behaviour was measured. Where the relevant behaviour was measured by observation or objective measurements the TPB could generally explain 21% of variance as compared to 31% when measurement was self report (Armitage & Conner, 2001).

1.3.3 The TPB and Unsafe sexunsafe sex.

In specific reference to safe and unsafe sexual literature, Sheeran, Abraham and Orbell (1999) conducted a meta-analysis of 124 studies examining the correlates of heterosexual condom use. In terms of the capacity of the TPB to predict behaviour, the variables shared by the TPB and TRA (attitudes, subjective norms and intentions) were found to be a consistent predictor of future behaviour in both longitudinal and cross-sectional analyses; this despite the concerns of many theorists that the TRA would find behaviours that are not entirely under volitional control to be problematic. In terms of subjective norms however it was noted that the subjective norm variable was somewhat weaker (in terms of predictive value) where expressed

in terms of friends and significant others rather than being expressed in terms of sexual partners and was less predictive than other TPB constructs.

The authors noted that past condom use was reliably correlated with future sexual behaviour, but also noted that this measurement on its own was of little value in terms of targeting maladaptive cognitions in order to reduce unsafe sexual behaviour.

Yzer, Siero and Buunk (2000) highlighted not only the capacity of the TPB to predict behaviour but also the importance of past behaviour. The study also made a distinction between unsafe sex with new and regular partners, noting that without this distinction there are limitations on the applicability of results. The authors therefore concentrated solely on participants who engage sex with casual partners. The authors applied the theory of planned behaviour to 94 Dutch adults in order to determine whether bringing up condom use and/or actual condom use are intentional or habitual (whether variance in the bringing up of or using of condoms can be predicted by past behaviour or intention). Participants were aged 15-45 and could be of any sexuality so long as they had casual sexual partners, 71 participants were male and the mean age was 32 years, with 14.9% of the participants identifying as homosexual or bisexual. Using structural equation modelling they were able to ascertain that bringing up condom use was predicted by both intention and past behaviour (intention to bring up condom use could be predicted to 25% and bringing up condom use could be predicted to 22%).

Variance within intention to use condoms could be predicted to 56%, however in actual condom use TPB variables could only predict 11% of variance and past behaviour could predict a further 33% of variance (Yzer et al., 2000).

Reinecke et al. (1996) studied the capacity of the TPB to predict condom use in German adolescents in two waves (each separated by twelve months). Participants were heterosexual, aged 14-24, and of the 1500 participants who began the study only 650 continued at wave two. Of those 650 continuing, 172 reported having new sexual partners in the elapsed year. Attitudes, subjective norms and PBC were able to account for 59.4% of variance in intention to use condoms with new partners. Intention and PBC however were only able to account for 10.2% of variance in actual behaviour as measured in wave two (Reinecke et al.,1996).

1.4 The Prototype/Willingness Model

Although the TPB was developed to address problems regarding prediction the level of volitional control required by certain behaviours there remain concerns that it is still inadequate in the prediction of behaviours which are reactive, unintentional or unplanned. As a result the Prototype/Willingness Model (P/W model) arose as an extension of the TPB and was intended to better predict those behaviours which are not intentional, planned or rational (Gibbons & Gerrard 1995; Gibbons, Gerrard, Blanton, & Russell 1998). Condom use is often considered a prime example of a

behaviour which is unplanned, reactive and not entirely under ones' volitional control as it involves another person (and therefore is not a decision made solely by an individual) and can occur without planning where the opportunity to engage in sexual intercourse presents itself. The P/W model retains the general structure of the TPB however the perceived behavioural control construct has been removed and the concepts of prototypes and willingness are added.

The prototype concept considers the specific stereotypic qualities one associates with individuals who perform a given behaviour and compares these to the internal prototype one has of themselves (the individuals self-image). The P/W model was developed initially for working with adolescents due to a theorised preoccupation "with social images and identities – their own and others" (Gibbons et al., 1998, p165). The underlying theory behind the inclusion of the prototype concept is that many risk behaviours are likely to occur in a social setting, that young people have a clear image of what type of person will perform a given behaviour and that if an individual engages in a given behaviour in a social setting then they are likely to acquire that image (Gibbons, et al. 1998). When an individual compares these prototypes to their own self-image they will view that prototype as similar, more positive or more negative. Where the prototype is seen as positive or similar to the an individual's self-prototype the individual is likely to be more willing to engage in the target behaviour, conversely where it is seen as more negative the individual is less likely to perform the behaviour (Gibbons & Gerrard 1995). In the case of risk behaviours, although an image may be negative the individual may still be willing to

acquire that image depending on the level of acceptability it has for them (Gibbons, et al. 1998).

A distinction is made in the literature between risky behaviour actor prototypes (individuals who engage in a given target risk behaviour) and risky behaviour abstainer prototypes (individuals who will not engage in a target risk behaviour); however, few studies have included risky behaviour abstainer prototypes (Rivis, Sheeran & Armitage, 2006). In studies which have included abstainer prototypes there tends to be stronger evidence for the predictive capacity of risky behaviour actor prototypes rather than abstainer prototypes, possibly due to the capacity of engaging in a risk behaviour to damage ones self image as compared to the capacity of abstention to improve self image (Rivis, et al. 2006).

The concept of willingness is included due to the fact that although an individual may not consciously intend to perform a given risk behaviour they may often find themselves in circumstances where the opportunity to engage in that behaviour arises; in these circumstances the question "what are you willing to do?" may not be the same as "what do you plan to do?" the primary difference being the reactive rather than deliberative nature of the concept (Gibbons et al 1998).

If the environment is conducive to performing a previously unplanned behaviour due to the social nature of that environment, it follows that some social comparison is occurring. Gibbons, Gerrard, Jewsbury, Conger, and Smith (1997) have suggested

that young people develop health-risk images early on in adolescence as part of the overall search for identity and due to the strong images that adolescents have of people who perform risk behaviours engaging in those behaviours allows the individual to sample the social consequences of adopting these habits (Gibbons, et al., 1998). The prototype concept allows researchers to measure the positive and negative images associated with a person who engages in specific risk behaviours and to compare this to the frequency of individual behaviour to determine whether more positive or negative health risk images affect frequency and likelihood of target behaviours.

Willingness and prototypes are particularly relevant to unsafe sexual behaviour within the MSM population as considerable effort (both in terms of finances and community engagement) have been spent trying to associate unsafe sex with danger, recklessness, and increased potential for HIV infection. Furthermore, the MSM community was the hardest hit during the initial outbreak of HIV infection and continues to be the most significantly affected group in the developed world today. It would therefore be expected that within this population prototypes relating to unsafe or safe sex would be particularly salient.

1.4.1 The P/W model and unsafe sex/pregnancy risk

The P/W model has been well received in the research literature and has been shown to be predictive of a wide variety of behaviours; Gibbons et al. (1998) used

the P/W model to predict smoking and pregnancy risk behaviours (unsafe sex). In the case of smoking, the authors measured young peoples' expectation that they will smoke in the future, willingness to smoke in the future, and scored participants on current/past smoking behaviour. Smoking behaviour (as the dependent variable) was measured at time 2 and regressed with behavioural expectation, behavioural willingness, and smoking at time one as independent variables. In this case past behaviour at time one explained 24% of variance in smoking behaviour at time three, this rose to 38% when expectation was included and 45% when behavioural willingness was included. These results suggested that willingness to engage in a target behaviour is a significant predictor of behaviour and additionally explains variance that is independent of that explained by the expectation variable.

The next study by Gibbons, et al. (1998) involved the first full appraisal of the P/W model in its entirety and was used to predict sexual intercourse without contraception in college age students. Participants again had past unsafe sex measured at time one, elements of the P/W model measured at time two (expectation, willingness, subjective norm, attitudes and risk prototype) and unsafe sexual behaviour (as dependent variable) was measured at time three. Structural equation modelling found that willingness, attitudes and subjective norm were significantly predicted by time one behaviour as were more positive risk prototypes. Behavioural expectation and willingness were both significant and independent predictors of time three behaviour with the entire model accounting for 66% of time three behaviour.

Other studies have had more mixed results. Myklestad and Rise (2006) compared the capacity of the TPB and P/W model to predict intentions and willingness to use contraception. In terms of intention to use contraception, only subjective norm and moral norm explained significant variance in males, and only subjective norm was a significant predictor for women. For prediction of the willingness variable in males, only moral norm significantly predicted willingness; however, in females moral norm and risk prototype were both significant predictors. These results suggested that for women the P/W model variables were indeed better predictors of willingness to use contraception than TPB variables alone, but that this was not so in males, possibly due to the greater involvement in and knowledge of contraception amongst women in the sample (Myklestad & Rise, 2006).

1.4.2 Comparison of the TPB and P/W model

Rivis, et al. (2006) performed a study which is of particular relevance to the current one, in that they examined the potential capacity of the P/W model to predict additional variance in intention above the TPB in terms of both risk behaviours (drinking alcohol, eating fatty foods and smoking) and health-protective behaviours (exercise, sleep for at least seven hours per night and eating breakfast). In addition, they examined whether only risk prototypes would be effective in predicting intention or whether health protective prototypes and risk abstainer prototypes

would aid in prediction, as well. To do this they performed a two step regression for intentions in which TPB models and past behaviour were entered in the first step and prototypes and P/W model variables were entered in the second step. The results suggested that the P/W model variables were in fact better able to predict intention in both risk and health protective behaviours than the TPB variables alone. Also of interest was that the prototypes of individuals who engage in health related behaviours and those who abstain from risk behaviours added significant predictive capacity in this case (Rivis, et al. 2006).

The current study will therefore examine not only the TPB but also the P/W model in order to assess which can account for the greatest variance in both intention and frequency of unsafe sexual behaviour per month in the current sample.

1.5 Situational Variables

Although both the TPB and P/W model have been consistently effective in their capacity to predict risk behaviour there is still a great deal of variance in this behaviour which is as yet unexplained. Part of the current study will be to examine the situations in which unsafe sexual behaviour occurs, and specifically if there are aspects of those situations which correlate with TPB/P/W model variables and with frequency of unsafe sex. These aspects will be termed 'situational variables' for the purposes of this study, and are considered malleable, inconstant aspects of the

current situation which may affect the behaviour of an individual at that point of time. These variables must also be contextually relevant to the unsafe sexual episode. For instance a person may be a frequent drug user, and drug use may have been associated with risk behaviour, but the question remains: Does being under the influence of drugs at the time of intercourse (or immediately prior) affect the decision to engage in safe or unsafe sex, or is it due to the long term effects of drug use?

The variables chosen for this study include drug use, alcohol use, potential partner variables, negotiation, condom related erectile issues, perception of high/low risk meeting venue and emotional state at time of intercourse.

1.5.1 Situational Variables; Substance Use

Substance use as a factor has been linked to increases in risk behaviour and unsafe sex in numerous studies, and in a number of studies regular usage of both depressants and stimulants seem to be correlated with either unsafe sex or risk behaviour in males (Rosario, Schrimshaw & Hunter, 2006; White, Lejuez & De Wit, 2007; Jaffe, Shoptaw, Stein, Reback & Rotherham-Fuller, 2007). Not only has stimulant use been examined in relation to immediate increases in risk behaviour in males but Wilton (2008) examined alcohol and drug use prior to or during unsafe sex in African- American males in the United States. This study found that illicit drugs correlated with casual sexual partners but also with HIV positive status, unprotected anal sex, and being younger (Wilton, 2008). Knapp Whittier, St. Lawrence and Seeley

(2004) also examined substance use in their study of home versus holiday unsafe anal intercourse and found that participants who had unsafe sex during holidays (away from home) were far more likely to have consumed alcohol or methamphetamines during sex. White et al., (2007) further suggested that the use of d-Amphetamines only increases risk behaviour in males, and specifically it only increases risk behaviour in males who score high on measures of impulsivity and risk-taking. It would therefore be expected that higher risk males who engage in frequent substance use may also be the ones who frequently engage in unsafe sexual intercourse either through a predisposition to risk behaviour or due to the long term effects of substance use. Another study based on HIV positive youths found that the correlation between substance use and unsafe sexual activity approached significance (Naar-King et al, 2006).

1.5.2 Negative emotional states and stress

A recent Toronto study attempting to examine leading explanations for the decrease in condom use has found suggestions amongst high-risk MSM individuals that many attribute unsafe sexual episodes to depression, poor self esteem and high stress situations (Adam, Husbands, Murray & Maxwell 2005). This has been tentatively confirmed by studies which suggest that gay and bisexual men are more likely to engage in unsafe sexual activity if they score high on measures of anxious symptoms and where they scored lower on measures of self esteem and a variety of positive cognitions regarding their sexuality (Rosario et al., 2006).

Drug taking, emotional vulnerability and unsafe sexual activity seem to have a level of comorbidity and in one study Jaffe et al. (2007) suggested that when participants (successfully) enter into a methamphetamine treatment programme measures of depression and frequency of unsafe sex decreased significantly. In a New Zealand study of adolescents, alcohol was proposed as a possible excuse to indulge in unsafe sexual practises without affecting one's reputation (Abel & Fitzgerald, 2006). Other studies have also linked emotional states such as depression and stress to unsafe sexual activity (Adam et al., 2005) and consequent HIV infection.

1.5.3 Potential partner variables

Potential partner variables are the general term this study will use to examine similarities between partners with whom participants have engaged in unsafe sex. They relate specifically to the partners' masculinity, attractiveness and perceived fitness.

1.5.4 Appearance

Evidence in support of including potential partner variables was drawn from a preliminary study by Kraft, Robinson, Nordstrom, Bockting and Rosser (2006). This study examined body image and obesity as it relates to unsafe sex in MSM populations. The data showed that men who are not classified as obese were 3.6 times more likely than obese individuals to have unsafe sexual intercourse. The authors have also noted that participants tended to have a strong belief that

individuals who are HIV positive will be less attractive or more 'sickly' in appearance. They have suggested that individuals engaging in unsafe sex may be attempting to limit the likelihood of HIV infection by targeting 'healthier' looking individuals (Kraft et al., 2006). This risk reduction technique is likely to be unsuccessful however as HIV positive individuals may not show physical symptoms of HIV/AIDS infection for years after initial infection and a HIV positive individuals are highest risk of transmitting HIV immediately after infection (Kallings, 2008).

1.5.5 Negotiation

Adam et al., (2005) found that a large proportion of individuals who have engaged in unsafe sex reported that they did so after a partner negotiated to opt out of condom use due to erectile problems, because they have recently been tested and are HIV negative, or simply due to a preference not to use them. This negotiation concept is linked to potential partner variables as it has been noted that an individual may feel less able to negotiate for condom use where a partner is considered attractive enough that the opportunity for sexual engagement should not be missed. It is also linked to substance abuse in the sense that use of drugs that may limit the capacity to successfully negotiate for safe sex may result in the individual being at higher risk from this type of situation. In addition to participants being asked about whether sexual partners have negotiated to opt out of safe sex participants will also be asked whether they themselves have negotiated to opt out of using condoms.

1.5.6 Venue

The venue at which an individual is likely to engage in unsafe sexual behaviour has been largely ignored in most literature. This makes defining such situations difficult. As a result, likely venues and situations will be extended from such studies as the Gay Auckland Periodic Sex Survey and from qualitative accounts of MSM individuals available in the literature. If an individual is likely to develop a prototype regarding the type of person who engages frequently in unsafe sexual behaviour it makes theoretical sense that they would develop or include in that prototype an assumption of the types of situations in which they are likely to engage in sex and seek partners. For instance, the prototype of a person who only engages in safe sexual activities would most likely not be expected to include frequent visits to bathhouses or saunas . This concept is tentatively supported by data from the Gay Auckland Periodic Sex Survey (Saxon, Dickson & Hughes, 2006) which showed that of MSM who recruited from gay bars 27.4% had engaged in unsafe anal intercourse, compared to 27.2% at the Big Gay Out festival and 18.9% at saunas and sex on site venues (a venue one would cognitively consider to be more likely frequented by high risk individuals).

One of the clearest examples of contextual behaviour change dependent on venue is the difference between sexual behaviour within the home environment as compared to that exhibited on holiday. In a study of spring break holiday habits

Apostolopoulos, Sonmez and Yu (2002) found that not only did spring breakers show an increase in sexual risk taking, drug and alcohol use during the holiday period but that they also picked destinations with these activities in mind. Of the males who participated in the study 72% intended to use condoms but only 54% took condoms with them and three quarters of all students claimed to have rarely or never used a condom during spring break. Knapp, Whittier, St. Lawrence and Seeley (2004) have also demonstrated a similar pattern in MSM individuals who go on holidays to gay resorts. Of their sample 37% of participants reported having unsafe sex either at home or at holiday with 39% saying they had only had unsafe sex on holidays and 34% reporting this behaviour both at home and at holiday. Of those participants who reported unsafe sex in both locations participants reported a higher number of instances of unsafe sex with non-main partners when on holiday. This study also noted a difference in the manner in which MSM found sexual partners at home versus at a resort with the primary method of finding partners at home being the internet and at holiday being bars.

1.5.7 Perceived condom-related barriers

Finally, perceived condom-related barriers refer to perceived or actual erectile problems or loss of sensation related to condom use. These have been suggested as a frequent issue for a number of MSM individuals who have engaged in unsafe sex; Adams et al. (2005) have encountered this factor with some frequency. Indeed, one HIV positive participant noted that he had been in a relationship with a HIV negative man who stoically refused to use condoms for this reason despite being aware of

that he and his partners' infection status were not concordant. Such blatantly risky practises would suggest either that the individual found the risk exciting, wished to contract HIV, or that condom related erectile issues are indeed a significant problem amongst those who have engaged in unsafe sex.

1.6 The Current Study

1.6.1 The current aims

The current study had three primary aims: The first was to examine the prototypes present in sample individuals towards those who have exclusively unsafe sex, exclusive safe sex, meet potential partners at social events, and those who meet potential partners at sex-on-site venues (venues such as saunas and adult bookstores where gay men may meet to engage in sex) to determine whether there are differences in prototype perception in line with participant risk level. In order to achieve this, participants will be divided into three risk groups. The first will be a 'safe' group consisting of participants who have never engaged in unsafe sex. The second will be an 'unsafe inactive' group consisting of participants who have engaged in unsafe sex previously but who currently do not and the third will be the 'unsafe' group, consisting of those who currently engage in regular unsafe sex. In addition comparisons between participant risk group and the constructs within each model will be undertaken to determine whether participants in each risk group score differently in terms of attitudes, perceived behavioural control, subjective norm, intention, willingness or prototypes.

The second purpose was to examine each model in terms of its ability to account for variance in intention and unsafe sexual behaviour per month. This would in turn allow for a comparison of significant variables within each theory to determine which contributed most in each overall model.

The third aim was to examine whether individuals in the current sample frequently experience the proposed situational variables immediately prior to or during instances of unsafe sexual activity.

1.6.2 Hypotheses

In the case of the first aim it was hypothesised that those in the highest risk groups would exhibit a less positive prototype of the exclusively safe prototype and social prototype than lower risk groups. It was also expected that those in the higher risk group would exhibit a more moderate or positive prototype towards the sex on site prototype than those in the lower risk groups. It was further hypothesised that those in lower risk groups would exhibit a more positive prototype of those in the exclusively safe and social prototypes and a less positive prototype of the exclusively unsafe and sex on site prototypes. In terms of TPB models it would be expected that the unsafe active and unsafe inactive would score lower in terms of attitudes toward condom use, perceived capacity to effectively or consistently use condoms (perceived behavioural control variable) and lower subjective norm towards condom use than the safe group. It is also expected that the unsafe and unsafe inactive group is likely to score lower in terms of intention to use condoms than the safe group. This hypothesis would also expect that participants in the unsafe and unsafe inactive group are likely to score

lower on willingness to use condoms or engage in lower risk activities than the safe group.

In the case of the second aim it was expected that the P/W model would be able to explain significantly greater variance in unsafe sexual behaviour per month and intention to use condoms than the TPB due to its greater emphasis on the reactive nature of sexual interaction.

In terms of the third hypothesis it was expected that participants would frequently report having experienced the proposed situational variables immediately prior to or during unsafe sexual intercourse. It was further expected participants in the unsafe active group would report greater frequency of these situational variables. It should be noted that, as the safe group had not engaged in unsafe sex they would not report on situational variables, as such a comparison between them and the unsafe and unsafe active groups therefore cannot be made.

2 Chapter Two.

Research Design and Methods.

2.1 Participants

In the current study the target population consisted of males who have sexual intercourse with other males (MSM) aged 18-26 who have had penetrative anal intercourse with another man in the past 9 months. The reason this demographic was chosen is because MSM individuals are the highest risk category for HIV transmission (along with intravenous drug users) and therefore should be considered the primary point of intervention. Rosario et al. (2006) have noted that younger MSM individuals tend to have more partners and more unprotected sex overall.

2.1.1 Sample Demographics

The sample consisted predominantly of New Zealand residents (136 participants) with eleven participants from the United States and eleven participants from other countries. The mean age was 21.7 years (SD = 2.78) with 110 identifying as homosexual, 44 as bisexual, and 3 as heterosexual. Table 1 shows participant demographics including a country by country breakdown.

2.2 Procedure

Participants were recruited through websites targeting MSM individuals such as MSM oriented social networking sites, dating sites and through magazine advertising in New Zealand's only nation-wide circulated same-sex magazine. Participants were invited to complete a survey of sexual habits and were referred to a website (www.msmsurvey.com), this site re-routed potential participants to an instruction page that explained the scales, defined the key terms, and explained the informed consent process and exclusion criteria, outlined in the previous section. Participants were informed that they could halt participation at any point prior to survey submission. In total, 265 people began the survey, and 177 completed the survey in its entirety. Incomplete survey submissions could not be analysed as informed consent was only provided at the point that each complete survey was submitted. Of the complete responses, 158 were within the appropriate age range of 18-26 and were included in the sample.

Table 1: Demographic profile of study participants

		M(SD)	N(%)
Age	-	21.7(2.78)	-
Orientation	-	-	-
	Heterosexual	-	3(1.9%)
	Bisexual	-	44 (27.8%)
	Homosexual	-	111 (69.6%)

Country	New Zealand	-	136 (86.1%)
	USA	-	11 (7.0%)
	United Kingdom	-	4 (2.5%)
	South Africa	-	1 (.6%)
	Australia	-	2 (1.3%)
	Canada	-	3 (1.9%)
	Unknown	-	1 (.6%)

2.3 Measures

2.3.1 Key Definition; new and regular male partners

Prior to beginning the survey participants were told that "A new male partner, indicates a casual sexual partner with whom you have not had sexual intercourse in the past". A regular male partner was defined as a male sexual partner who "is not limited to those you have an established relationship with (for instance a boyfriend/partner), but includes those males you have had repeated sexual

encounters with." Participants were also informed that any question relating to sexual intercourse referred to sex with a male partner only, and this was also stated in the survey questions themselves.

2.3.2 Unsafe sex past and current

Unsafe sex measures consisted of two sections, the first (which was completed by all participants) asked "In the past when I have had anal sex with a <u>new male partner</u> I have done so…" this was followed with a five-point likert-type scale with anchors at the extreme ends labelled 'Always with a condom' (scored as 2) and 'never with a condom'(scored as -2). This question was subsequently repeated with 'new male' partner changed to 'regular male' partner (with the same likert-type scale and anchors). Participants were also asked whether they had ever engaged in unsafe sex however, this measure was only used to determine whether participants needed to answer subsequent unsafe sex questions. By answering "no" to this question participants were allocated to the safe group. The final measure was only completed by participants who reported having engaged in unsafe sex in the past and asked "In a given month I would have anal sex with a male without using a condom X many times (please enter an approximate number)". The unsafe sex per month question was used for two different purposes: first, to measure how often participants engaged in unsafe sex per month; and second, to allocate participants into one of the other two risk groups (unsafe inactive and unsafe groups).

Participants were allocated to the unsafe inactive group (group two) if they answered zero times in a month, or unsafe active (group three) if they indicated having unsafe sex one or more times in a given month.

2.4 Theory of planned behaviour measures

2.4.1 Intentions

Intention to engage in safe sex was measured separately for new partner and regular partner using two questions adapted from a number of studies using the theory of planned behaviour (TPB) (Hrubes & Ajzen, 2001; Schifter & Ajzen, 1985; Reinecke et al., 1997; Yzer et al., 2000; Gredig, Nideroest & Parpan-Blaser, 2006). The first question asked the participant to complete the sentence 'I intend to use a condom every time I have anal sex with a regular male partner' followed by a five point likert-type scale with anchors 'definitely do not' (scored as -2) and 'definitely do' (scored as 2). This question was then repeated regarding new partner instead of a regular partner with the same scale and scoring. Later in the questionnaire participants were presented with the statement 'I want to use a condom with a regular male partner every time I have anal sex'. As before, the same question was asked with 'new partner' in place of 'regular partner' and was followed each time by a five point likert-type scale ranging from 'Definitely do' (scored as 2) and 'Definitely do not' (scored as -2). To measure the internal consistency of these questions a Cronbach's Alpha Reliability Coefficient was calculated with the new partner

intention questions reporting a Cronbach's Alpha value of .82, regular partner

intention variables scored a Cronbach's Alpha value of .94.

2.4.2 Attitudes

Attitudes towards condom use were based on similar studies using either the TPB or

P/W model (Myklestaad & Rise, 2007; Yzer et al., 2000; Gibbons et al., 1998) and

were measured separately for new partner and regular partner by asking 'For me

using a condom every time I have anal sex with a new/regular male partner is;'. The

attitude questions were followed by four separate response likert-type scales with

anchors ranging from: foolish to wise, harmful to beneficial, bad to good and

undesirable to desirable. For each scale, responses were scored from two to

negative two. Again, these scales were tested for internal consistency by calculating

the Cronbach's Alpha coefficient; for new partner condom attitudes the Cronbach's

alpha value was .69, the regular partner attitude scales scored a Cronbach's alpha

value of .83.

2.4.3 Perceived behavioural control

Perceived behavioural control measures were based on studies using the TPB (Yzer

et al., 2000; Reinecke et al., 1997) and were measured using the average of three

questions. The first question asked 'How confident are you that you will be able to

use a condom every time you have anal sex with a male partner?' This was followed

by a five point likert-type scale with anchors ranging from 'not at all confident' (-2) to

'very confident' (2). The second question stated 'I believe that I have the ability to use a condom every time I have anal sex with a male partner' and was followed by another five point likert-type scale with anchors 'not at all confident' (scored as -2) to 'very confident' (scored as 2). Finally, participants were asked 'To what extent do you see yourself as being capable of using a condom every time you have anal sex with a male partner?' with another five point likert-type scale anchored 'not at all capable' (-2) to 'very capable' (2). The responses to these questions were combined and averaged. A reliability analysis was again performed for these questions by calculating the Cronbach's alpha which reported as .86. Perceived behavioural control was measured only once with no distinction made between new partner perceived behavioural control and regular partner perceived behavioural control.

2.4.4 Subjective Norm

These measures were based on studies from both the TPB and P/W models (Gibbons et al., 1998; Myklestaad & Rise, 2007) and were measured by presenting participants with the statement 'People who are important to me think I should use a condom every time I have anal sex with a male partner (please click the appropriate response to complete the sentence)' followed by a five point likert-type scale anchored 'not at all true' (-2) to 'very true' (2). A second statement was also presented; 'People who are important to me want me to use a condom every time I have anal sex with a male partner' also followed by a five point likert-type scale with anchors ranging from 'not at all true' (-2) to 'very true' (2). Reliability analysis of these questions

resulted in a Cronbach's alpha value of .82 and was measured only as a general construct, that is not separately for new and regular partner.

2.5 Prototype Willingness Measures

2.5.1 Willingness

In studies of the P/W model Gibbons et al. (1998) provided participants with an example of a situation where an opportunity to engage in the target behaviour, in this case unsafe sex, may arise. Participants are then given a series of options, each one varying in risk, as to how they might respond in such a situation and asked how willing they would be to choose each response (Gibbons et al., 1998). Willingness to have unsafe sex with new partners was measured in this study by presenting participants with the following scenario: 'Imagine you were at a venue (such as a bar, gym, sauna or party) where you would generally meet the kind of man you would like to have sex with. Both you and he are meeting for the first time and would like to have anal sex however neither of you have condoms. How likely is it that you would;' This situation was followed by five options, 'Choose a less risky type of sexual activity such as oral sex or mutual masturbation', 'Have anal sex but withdraw prior to ejaculation', 'Have sex without using a condom' and 'Abstain from sex'. Each of these options had a five point likert-type scale ranging between 'very unlikely' to 'very likely' and scored from -2 to 2, respectively. The scores for 'have sex without condom' and 'have sex but withdraw' options were reversed, combined and averaged with the 'abstain' and 'choose less risky activity' options. This resulted in an

overall willingness score which was higher for participants who would be more willing to choose safer options and lower for participants willing to engage in more risky behaviours. The willingness to have unsafe sex with regular partner question presented participants with the following scenario: "Imagine you are with a man whom you have had regular sexual contact with in a familiar situation. You both wish to have anal sex again however neither of you have condoms. How likely is it that you would" Again, the five above possible responses were presented and were scored in the same manner (using likert-type scales anchored 2 to -2), and unsafe options were again reversed to reflect the higher risk of those activities and a simple arithmetic mean was taken of those scores. For each of these items a Cronbach's Alpha value was computed to ensure internal consistency, with regular partner willingness scoring .64 and new partner willingness scoring .58.

2.5.2 Prototypes

In the current study, four different prototypes were measured. The first prototype was of a person who never engages in unsafe sex, the second prototype represented a person who only engages in unsafe sex, the third represented a person who frequently meets sexual partners at sex-on-site venues and the fourth represented a person who meets partners predominately at social events. The prototype measurement methodology was similar to that of Gibbons et al. (1998) in which participants are given a brief definition of what a prototype is and is then asked to imagine a specific type of person and score them on a number of attributes. In this study participants were given the following explanation "When each of us thinks of

the typical person who belongs to a particular group or who performs a specific behaviour, we each develop what is called a 'prototype'. These prototypes are the collection of attributes we think of when we imagine this typical person (your personal 'image' of that type of person). These attributes can be positive, negative or both. For example a typical prototype of a 'footballer' may include attributes such as fit, attractive, and team oriented. Another person however may consider a typical footballer egotistical, unintelligent, and unattractive. Neither of these are wrong and simply demonstrate the variety of prototypes available." The participants were then asked to imagine each of the four 'types' of people listed above. Following these instructions seven five point likert-type scales were presented the responses to which reflected the participants judgement of the prototypical individuals. The attributes measured were: self confident, independent, immature, careless, attractive, dull and smart scored from 'not at all' -2 to 'very' 2. Where necessary the scales were reversed, and all responses were combined and averaged. Reliability analysis completed for each of the prototypes resulted in Cronbach's alpha values of .78 for the social prototype, .76 for the always safe prototype, .72 for the always unsafe prototype and .60 for the sex on site prototype.

2.6 Situational variable measures

The situational variable questions were only answered by respondents who indicated that they have had unsafe sex in the past and were concerned with whether participants frequently experienced specific emotional states, substance use or other stimuli which may be associated with higher levels of unsafe sex.

2.6.1 Substance use

To examine drug use, alcohol use and depression participants were asked "Keeping in mind past instances where you have had anal intercourse without a condom, how often would you have done so immediately after __". For each situational variable question the blank space would be filled with either "taking drugs (other than alcohol) or whilst taking drugs?", "after consuming alcohol or whilst consuming alcohol" or "whilst feeling depressed?" These questions were again followed by a five point likert-type scale ranging from always (2) to never (-2).

2.6.2 Stressful events

To examine whether stressful events may be associated with unsafe sexual behaviour participants were asked, "Keeping in mind past experiences where you have had anal intercourse without a condom, how often would this have occurred whilst you were experiencing significant stressful events (i.e. after a break-up or significant work issue)?" This question was followed by the familiar five point likert-type scale with anchors of 'always' (2) to 'never' (-2).

2.6.3 Erectile problems

To examine whether erectile problems were a significant issue in this sample participants were asked "Keeping in mind instances where you have had anal

intercourse without a condom in the past, how often have you done so after use of a condom has been followed by:" this question was then followed by two five-point likert type scales anchored always-never. The first scale was assigned "loss of erection" and the other assigned "inability to reach climax". Each of these scales were marked 'always' (2) to never (-2).

2.6.4 Venue

To examine whether venue was associated with unsafe sexual behaviour participants were asked "Thinking back to when you have had <u>unprotected anal sex</u> in the past, how often would you have met your partner <u>on that occasion</u> at" this was followed by four five-point likert-type scales with anchors 'always' (2) to 'never' (-2). The five scales were denoted "a sex on site area such as sauna, adult bookstore or public toilet/cruising area", the second "a bar or nightclub", the third "A social event, café or restaurant" and the fourth was denoted "on the internet".

2.6.5 Negotiation

To examine negotiation as being potentially associated with unsafe sexual behaviour participants were asked two questions, the first "Keeping instances where you have had anal sex with a man without a condom in mind how often has <u>the other person</u> you have had sex with negotiated to not use a condom?" and "Keeping instances

where you have had anal sex with a man without a condom in mind how often have you negotiated to not use a condom?". Each of these questions were followed by a five point likert-type scale with anchors 'always' (2) to 'never' (-2). Finally, to examine whether a particular partner type was associated with unsafe sexual behaviour, participants were asked "Think back to when you have had sex with a male without a condom in the past and the people you have had sex with. Keeping these people in mind on average were they:" this question was followed by three five point likert-type scales. The first had the anchors 'effeminate' (-2) to 'masculine' (2), the second was 'unattractive' (-2) to 'attractive' (2) and the third was anchored 'physically unfit' (-2) to 'physically fit' (2).

Chapter Three: Results.

Results were obtained using SPSS for Windows version 15.0. The general descriptives

from the sample are presented (Table 2) followed by results relating to

Table 2. Sexual demographics of study participants

		M(SD)	N(%)
Total Sample (n=158)			
Frequency of sex		4.85(7.28)	
	0	-	17(10.8)
	1-5	-	104(65.8)
	6-10	-	19(12)
	11-20	-	12(7.6)
	21•	-	6(3.8)
Unsafe Sex (ever)		1.39(.49)	
	Yes	-	97(61.4)
	No	-	61(38.6)
Unsafe sex sample (n=97)			
Unsafe Sex (per month)		3.96(6.29)	97(100)

0	-	22(22.7)
1-5	-	56(57.7)
6-10	-	8(8.3)
11-20	-	9(9.2)
21•	-	2(2.1)

each of the three aims of the study.

3.1 Descriptives

Participants reported anal sex on average 4.85 times per month with 121 participants (76.6%) reporting anal sex with other men five times or less in a given month. Ninety-seven participants (61.4% of total participants) had engaged in unsafe sex at some point and on average they did so 3.96 times per month. Of these participants 80.4% (or 78 of the 97 participants who reported unsafe sex) reported having unsafe sex five times or less in a given month.

3.2 Hypothesis 1

The initial aim of this study was to compare the risk groups in terms of TPB model variables and P/W model variables (in particular prototypes). To compare TPB variables, univariate analysis of variance tests were completed for each of the

variables PBC and SN as these were measured as a single construct (in neither case was a distinction was made between a new and regular partner). For attitudes, prototypes, willingness and intentions, multivariate analyses of variance (MANOVA) were completed as there were multiple dependent variables to be examined in each case. Post-hoc tests were also examined to determine differences between risk groups. Table 3 presents the descriptive statistics and significant group differences which will be discussed below.

3.2.1 Attitudes

Multiple analysis of variance for attitudes toward condom use showed a significant overall effect for risk group by attitudes $F(2,155) = 10.69$, $p = <.001$ as well as significant effect for risk group by new partner attitude $(F(2,155) = 10.89, p = <.001)$ and for risk group by regular partner attitude $(F(2,155) = 23.36, p = <.001)$. In the case of new partner attitude group three (unsafe active group) exhibited a lower mean score ($M = 4.49$, $SD = .72$) than group two (unsafe inactive group: $M = 4.88$, $SD = .32$, $p = <.001$) suggesting that the unsafe active group had a significantly more negative attitude toward condom use with new partners than the unsafe inactive group. Group three also scored significantly lower than group one (safe group: $M = 4.89$, $SD = .26$, $p = <.001$) indicating that the unsafe active also had significantly lower attitudes toward new partner condom use than the safe group. There were no significant differences between groups one and two ($p = .996$) indicating that these groups did not differ significantly in terms of new partner condom use attitudes.

Table 3. Descriptive Statistics and significant group differences, n=158

Variables	Group 1 (safe group) (N = 61) Mean (SD)	Group 2 (unsafe-inactive group) (N = 22) Mean (SD)	Group 3 (Unsafe-active group) (N = 75) Mean (SD)
Attitude (NP)	4.89(.26)[a]	4.87(.32)[a]	4.49(.72)[b]
Attitude (RP)	4.74(.55) [a]	4.65(.74)[a]	3.87(.93)[b]
SN	1.48(.76)[a]	1.61(.7)[a]	1.01(1.14)[b]
PBC	1.76(.43)[a]	1.59(.51)[a]	.87(.84)[b]
Intention (NP)	1.84(.45)[a]	1.7(.61)[ab]	1.23(1.04)[b]
Intention (RP)	1.55 (.80)[a]	.91 (1.19)[a]	-.21(1.35)[b]
Willingness (NP)	1.22(.58)[a]	1.16(.72)[a]	.33(.86)[b]
Willingness (RP)	1.0(.84)[a]	.45(.60)[b]	-.27(.84)[c]
Prototype Safe	.99(.83)	1.15(.48)	.75(.70)
Prototype Unsafe	-.31(.84)	-.55(.77)	-.06(.79)
Prototype SOS	00(.56)	-.19(.8)	-.03(.64)
Prototype SOC	.74(.74)	.88(.78)	.63(.68)

Note: NP = New Partner, RP = Regular Partner, SN = Subjective Norm, PBC = Perceived Behavioural Control, SOS = Sex on site, SOC = social. Means with different subscripts in a row are significantly different to each other at least at p=<.05

For regular partner attitudes group three again scored lower (M = 3.87, SD = .93) than group two (M = 4.65, SD = .74, p = .013) indicating that participants who engaged in regular unsafe sex had a more negative attitude towards condom use with regular partners than those who have had unsafe sex but do not do so regularly. Group three also scored significantly lower than group one (M = 4.74, SD = .55, p = <.001) again this shows that the unsafe group had more negative attitudes towards regular partner condom use than the safe group. No significant mean difference was found between groups one and two (p = .479) demonstrating there was no significant difference in terms of regular partner condom use attitudes between the unsafe inactive and safe groups.

3.2.2 Subjective Norm.

The ANOVA for subjective norm F(2,155) = 5.61, p = .004 was significant and the post hoc Scheffe's tests indicated that the mean subjective norm value for group 3 (M = 1.01, SD = 1.14) was significantly lower than for group two (M = 1.61, SD = .71, p = .038) and group one (M = 1.48, SD = .76, p = .019). Further, although group three differed in terms of subjective norm to group one and group two there were no significant differences between groups one and two (p = .862). These results show that participants who were engaging in regular unsafe sex believed that significant others would consider condom use to be less important that those participants who had never engaged in unsafe sex or participants who had previously had unsafe sex

but were not engaging in regular unsafe sex at present. There was no significant difference in subjective norm between the unsafe inactive and safe groups indicating that they had similar beliefs regarding the importance of condom use to significant others.

3.2.3 Perceived Behavioural Control

Another ANOVA was completed to compare perceived behavioural control in terms of the three risk groups $F_{(2,155)} = 32.4$, p = <.001 with group three again scoring lower (M = .87, SD = .84) on measures of perceived behavioural control than group two (M = 1.59, SD = .51, p = <.001) and group one (M = 1.75, SD = .43, p = <.001). These results show that participants who were currently engaging in regular unsafe sex believed they were either less able to use a condom effectively or less able to use condoms consistently than participants who had never engaged in unsafe sex or those who had engaged in unsafe sex previously but currently do not. Again, groups one and two did not differ significantly based on the results of the Scheffe post-hoc test (p = .597) demonstrating that the safe group and unsafe inactive group do not differ in their beliefs regarding their own capacity to use condoms effectively or consistently.

3.2.4 Intention

In order to compare risk groups in terms of new partner intention and regular partner intention a multivariate analysis of variance was performed with intention

variables as dependent and risk group as the independent variables. The overall result of this MANOVA was significant $F_{(2,155)} = 15.7$, $p = <.001$ as were the new partner intention results $F_{(2,155)} = 10.07$, $p = < .001$. In this case group three (M = 1.23, SD = 1.03) scored lower than group two (although not significantly so) (M = 1.70, SD = .61, p = .056) and significantly lower than group one (M = 1.84, SD = .45, p = <.001). These results show that participants who were currently engaging in unsafe sex on a regular basis had a lower intention to use condoms with new partners than those participants who had never engaged in unsafe sex. Although participants in the unsafe group did not differ significantly in their intention to use condoms with new partners than those from group two (unsafe inactive) these differences did approach significance (p = .056). Again there were no significant differences between groups one and two (p = .805) indicating that those participants who had never engaged in unsafe sex did not differ in their intention to use condoms than those who have had unsafe sex in the past but were currently not.

Regular Partner Intention showed a similar pattern of results (although significant in both cases) $F_{(2,155)} = 38.91$, $p = <.001$ with group three scoring significantly lower (M = -.21, SD = 1.35) than group two (M = .91, SD = 1.19, p = <.001) and group one (M = 1.52, SD = .8, p = <.001). Once again this would indicate a lower intention on the part of the unsafe active group to use condoms with regular partners when compared to the unsafe inactive and safe groups. There were again no significant differences between groups one and two in terms of regular partner intention (p = .106).

3.2.5 Willingness

A multivariate analysis of variance showed significant results when comparing risk groups and willingness overall $F_{(2,155)}$ = 19.36, p = <.001. The analysis showed significant results for both new partner willingness ($F_{(2,155)}$ = 14.89, p = <.001) as well as significant for regular partner willingness ($F_{(2,155)}$ = 27.53, p = <.001).

In the case of new partner willingness group three had a significantly lower mean score (M = .33, SD = .88) than group two (M = 1.16, SD = .72, p = <.001) and group one (M = 1.22, SD = .58, p = <.001). Due to the manner in which scores were reversed this indicates that when meeting a new partner the unsafe active group would be less willing to engage in lower-risk sexual activities (such as mutual masturbation or abstinence), higher willingness to engage in unsafe sexual behaviours or both when compared to the unsafe inactive and safe groups. There was no significant difference between the safe group and unsafe inactive group (p = .95) indicating that these two groups do not significantly differ in terms of willingness to engage in less risky habits with new partners.

This pattern again emerged in comparison of group means in the regular partner willingness variable with group three scoring lower (M = -.27, SD = .84) than group two (M = .45, SD = .6, p = <.001) and group one (M = 1.0, SD = .84, p = <.001). Again the unsafe group demonstrated a higher willingness to engage in risky sex with a regular partner when compared to the unsafe inactive and safe groups. However, in

this case the mean differences between group one and group two were significant (p = .026) indicating a greater willingness to engage in more risky activities on the part of the unsafe inactive group when compared to the safe group.

3.2.6 Prototypes

A multivariate analysis of variance was performed for the prototype measures, however the overall effect was nonsignificant ($F_{(2,155)} = 1.47$, $p = .17$) in this case. However, for exploratory reasons the univariate results were examined and it was found that the effect for risk group by safe prototype was significant ($F_{(2,155)} = 3.31$, $p = .04$) as was the effect for unsafe prototype ($F_{(2,155)} = 3.37$, $p = .03$). Effects between risk group and social prototype ($F_{(2,155)} = 1.14$, $p = .32$) and between risk group and sex on site prototype ($F_{(2,155)} = .73$, $p = .48$) were nonsignificant. No significant group differences were found in terms of the post hoc tests.

3.2.7 Summary

In summary, although the three groups did not differ significantly on any prototype measures the unsafe active group scored significantly lower than groups one and two on all non-prototype measures. The safe group and unsafe inactive group only differed in terms of regular partner willingness, with the safe group scoring higher on regular partner willingness scores than the unsafe inactive.

3.3 Hypothesis 2.

3.3.1 Correlations

Table 4 shows the zero order correlations which (in terms of the Theory of Planned Behaviour variables) show that new partner intention is most strongly correlated with new partner attitude (r = .68), new partner past behaviour (r = .67) and perceived behavioural control (r = .57). For regular partner intention (in terms of Theory of Planned Behaviour measures) the most significantly correlated variables are regular partner past behaviour (r = .81), regular partner attitude (r = .73) and perceived behavioural control (r = .58). Subjective norm was significantly correlated with new partner past behaviour (r = .37), perceived behavioural control (r = .33), new partner intention (r = .33) and regular partner past behaviour (r = .30). Although the correlations for regular partner intention are stronger than for new partner intention all Theory of Planned Behaviour variables are correlated at least at the p = <.05 level indicating a strong relationship between them. In terms of the Prototype/Willingness Model new partner intention is most significantly correlated with new partner willingness (r = .52), regular partner willingness (r = .43) and unsafe prototype (r = -.28). For regular partner intention the most significant Prototype/Willingness model variable correlations were with regular partner willingness (r = .58), new partner willingness (r = .35) and unsafe prototype (r = -.20). The Prototype/Willingness model variables which correlate least with the other variables were the social, always safe and sex-on-site prototype measures. Unsafe prototype was significantly correlated with all other measures except social

prototype. Further, the unsafe prototype was negatively correlated with other significant variables including new partner attitudes (r = -.29), perceived behavioural control (r = -.29) and new partner intention (r = .28) as would have been expected of this type of measure. The other prototypes (safe prototype, social prototype and SOS prototype) had fewer significant correlations. Safe prototype was most significantly correlated with unsafe prototype (r = -.48), and social prototype (r = .28). Social prototype was most significantly correlated with new partner past behaviour (r = .20) and SOS prototype (r = .20). The final prototype (SOS prototype) was only correlated with social prototype and unsafe sex per month (r = -.21).

What should also be noted in terms of correlations are the positive correlation between new partner and regular partner variables such as new partner and regular partner past behaviour (r = .60), new and regular partner attitudes (r = .55), new and regular partner intentions (r = .54) and new and regular partner willingness (r = .64).

Table 4. Zero order correlations n=158 (for USPM n=97).

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	NP past behav.	1.0													
2	RP past behav.	.60**	1.0												
3	NP attit.	.57**	.42**	1.0											
4	RP attit.	.29**	.65**	.55**	1.0										
5	SN	.37**	.30**	.30**	.24**	1.0									
6	PBC	.55**	.6**	.48**	.47**	.33**	1.0								
7	NPI	.67**	.55**	.68**	.37**	.33*	.57**	1.0							
8	RPI	.42**	.81**	.43**	.73**	.31**	.58**	.54**	1.0						
9	Proto. US	-.25**	-.23**	-.29**	-.17*	-.18*	-.29**	-.28**	-.20*	1.0					
10	Proto. SOS	.00	.10	.00	.12	-.10	.04	.01	.10	.22**	1.0				
11	Proto. SOC	.20*	-.01	.16*	-.03	.01	.07	.07	-.08	-.04	.20*	1.0			
12	Proto. Safe	.19*	.16*	.15	.11	.18*	.23**	.14	.13	-.48**	.01	.28**	1.0		

13	NP willing.	.57**	.48**	.42**	.25**	.20*	.58**	.52**	.35**	-.31**	.01	.15	.27**	1.0	
14	RP willing.	.48**	.6**	.34**	.43**	.20*	.54**	.43**	.58**	-.17*	.02	.02	.21**	.64**	1.0
15	USPM	-.22*	-.42**	-.10	-.33**	-.06	-.32**	-.23*	-.49**	.01	-.21*	.06	-.11	-.23*	-.34**

*p<.05, **p<.01, ***p<.001

Note: NP = new partner, RP = regular partner, past behav = past behaviour, SN = subjective norm, PBC = perceived behavioural control, NPI = new partner intention, RPI = regular partner intention, Proto. US = unsafe prototype, proto SOS = prototype sex on site, Proto SOC = prototype social, Proto Safe = safe prototype, NP willing = new partner willingness, RP willing = regular partner willingness, USPM = unsafe sex per month.

Hypothesis two intended to determine the amount of variance each model would be able to predict in each of the intention variables as well as predicting variance in unsafe sexual behaviour per month. Variables were entered into the hierarchical regression in the order dictated by each of the theories and past behaviour was controlled for in each regression. Results are summarized in tables 5-12.

3.3.2 New partner intention regressed with TPB

The first hierarchical regression performed (see Table 5) was for new partner intention accounted for by Theory of Planned Behaviour variables. Step one examined

Table 5. New partner intention regressed with TPB variables.

Step	Variables	B	Beta	R^2 Change
1	Prior Condom Use (NP)	.53***	.67***	.45***
2	Attitude (NP)	.60***	.40***	.16***
	SN	.00	.03	-
	PBC	.20**	.19**	-

*p<.05, **p<.01, ***p<.001

the amount of variance explained by past behaviour. The R^2 change for past behaviour was significant (p = <.001), accounting for 45% of variance (.44 adjusted R^2) in new partner intention. In the second step, the Theory of Planned Behaviour variables new partner attitude, subjective norm and perceived behavioural control were entered. This step accounted for an additional 16% of variance, again this was significant (p = <.001). The total model accounted for 61% of the variance in new partner intention (.60 adjusted R^2). The regression shows that perceived behavioural control and attitude are able to explain significant variance in new partner intention. However, despite the zero order correlations showing subjective norm and new partner intention as being significantly correlated (see Table 2), when past behaviour is controlled for and new partner attitudes and PBC are included in the regression subjective norm becomes nonsignificant.

3.3.3 New partner intention regressed with P/W model

The next hierarchical regression (see table 6) was completed for new partner intention with Prototype/Willingness Model variables. Variables were entered into the regression according to the Prototype/Willingness Model, the first step controlled for previous condom use, the second step included safe, unsafe, social and sex-on-site prototypes, subjective norm and new partner attitude. The final step included new partner willingness. The first step was significant (p = <.001) explaining 45% of

Table 6. New partner intention regressed with P/W Model variables

Step	Variables	B	Beta	R^2 Change
1	Prior condom use (NP)	.53***	.67***	.45***
2	Subjective Norm	00	.05	.15***
	NP attitude	.65***	.44***	
	Safe Prototype	00	-.03	
	Social Prototype	-.10	-.09	
	Prototype SOS	.01	.04	
	Unsafe Prototype	-.01	-.07	
3	NP Willingness	.14*	.14*	.01*

*p<.05, **p<.01, ***p<.001

variance in new partner intention (44% adjusted R^2). The second step was significant (p = <.001) with an R^2 change of .15. The third step was also significant (p = .03) with an R^2 change of .01. Overall, this model was able to account for 60% (59% adjusted) of variance in the new partner intention variable (note: the sum of R^2 change values quoted is not equal to the overall R^2 value due to rounding).

Again the most significant variable in this regression was past behaviour followed by new partner attitudes. New partner willingness was also a significant predictor of new partner intention however no significant further variance was explained by the prototype measures. The overall explained variance in new partner intention is the same as those measures from the Theory of Planned behaviour variables.

The zero-order correlations had shown new partner willingness and the unsafe prototype as both being significantly correlated with new partner intention, however when past behaviour was controlled for and new partner attitudes were included in the regression only new partner willingness was able to explain a significant amount of further variance.

3.3.4 New partner intention regressed with both models

Following this, a regression was performed with both Theory of Planned Behaviour and Prototype/Willingness Model variables included (see table 7) to see whether a combination of the two theories would account for greater variance in the new partner intention. On the first step past behaviour was controlled for, the second step included subjective norm, new partner attitudes and perceived behavioural control. The third step included new partner willingness and unsafe, safe, social and sex-on-site prototypes. The first step was significant (p = <.001) accounting for .45 R^2 change (44% adjusted R^2 change). The second step was also significant (p = <.001) accounting for .16 R^2 change (.61 total R^2, .60 adjusted R^2). The third step was nonsignificant (p = .43) with an R^2 change of .01 (.62 R^2 total, .60 adjusted R^2). When the variables of each model are combined past behaviour remains the most

significant predictor followed by new partner attitudes and perceived behavioural control. However, in this regression new partner willingness drops out of significance due to the inclusion of perceived behavioural control, this would suggest that willingness and perceived behavioural control are explaining the same variance in new partner intention. The overall variance in new partner intention explained in this regression is no different to that explained by either of the models independently.

Table 7. New partner intention regressed with TPB and P/W model variables

Step	Variables	B	•eta	R^2 Change
1	Prior Condom Use (NP)	.53***	.67**	.45***
2	SN	00	.03	.16***
	NP Attitudes	.60***	.40***	
	PBC	.20**	.19**	
3	NP Willingness	.01	.09	.01
	Unsafe prototype	00	-.05	
	SOS prototype	00	.03	
	SOC prototype	-.01	-.07	
	Safe prototype	-.01	-.05	

*p<.05, **p<.01, ***p<.001

3.3.5 Regular partner intention regressed with TPB.

The next regression examined the capacity of TPB variables to predict regular partner intention (see table 8). Again, past condom use was included at the first step, the second step of the regression included perceived behavioural control, subjective norm and attitudes towards regular partner condom use. Step one was significant (p = <.001), accounting for 65% of variance in the regular partner intention, the second level was also significant (p = <.001) with TPB variables accounting for a further .09 R^2 Change (R^2 = .73, Adjusted R^2 = .73). In this case prior regular partner condom use and regular partner attitudes were still the most significant predictors of regular partner intention, however unlike the regression for new partner intention perceived behavioural control was non-significant (subjective norm remained non-significant). However, Theory of Planned Behaviour was far better able to explain variance in regular partner intention (R^2 = .73) than it was able to explain variance in new partner intention (R^2 = .61).

The zero-order correlations for TPB variables showed that regular partner intention was significantly correlated with past behaviour, regular partner attitudes, perceived behavioural control and finally subjective norm. However when past behaviour was

Table 8. Regular partner intention regressed with TPB Model variables

Step	Variables	B	$\bullet$eta	R^2 Change
1	Prior Condom Use (RP)	.78***	.81***	.65***
2	Subjective Norm	.01	.04	.09***
	PBC	.18	.10	
	RP Attitude	.55***	.35***	

*p<.05, **p<.01, ***p<.001

controlled for and regular partner attitudes were included both perceived behavioural control and subjective norm are non-significant.

3.3.6 Regular partner intention regressed with P/W model

A regression was then run with regular partner intention as the dependent variable with Prototype/Willingness Model variables as the independent variables (see table 9). The first step of the regression consisted of past behaviour; the second step included safe, unsafe, social and sex-on-site prototypes, regular partner attitude and subjective norm. The third step included regular partner willingness. The first step of the regression was significant (p = <.001) with an R^2 change of .65 in regular partner intention, step two was again significant (p = <.001) producing an R^2 change of .09 (R^2 = .73, adjusted R^2 = .72). Finally, the third level was also significant (p = .01) with an R^2 change of .01 (R^2 = .74, adjusted R^2 = .73). In this regression previous behaviour was still the most significant predictor of regular partner intention, regular partner attitudes remained significant as did regular partner willingness and prototypes

explained no further variance. This model was able to explain 74% of variance in regular partner intention which was higher than the Prototype/Willingness model regression for new partner intention (R^2 = .60). It was again no better able to predict regular partner intention than the Theory of Planned Behaviour model. Again in this regression despite significant correlations between regular partner intention, past behaviour, regular partner attitudes, perceived behavioural control and regular partner willingness when past behaviour was controlled for only regular partner attitudes and regular partner willingness remained significant predictors of intention.

Table 9. Regular partner intention regressed with P/W Model variables

Step	Variables	B	•eta	R^2 Change
1	Prior Condom Use (RP)	.78***	.81***	.65***
2	Subjective Norm	.01	.06	.09***
	RP attitude	.56***	.35***	
	Safe Prototype	00	.01	
	SOC Prototype	-.14	-.07	
	SOS Prototype	.01	.02	
	Unsafe Prototype	00	-.01	

| 3 | RP Willingness | .19* | .13* | .01* |

*p<.05, **p<.01, ***p<.001

3.3.7 Regular partner intention regressed with both models.

The final regression in this section (see table 10) of hypothesis two included both Theory of Planned Behaviour and Prototype/Willingness Model variables as the independent variables and regular partner intention as the dependent variable. In the first step past behaviour was controlled for, the second step included subjective norm, perceived behavioural control and regular partner attitudes. The third step included safe, unsafe, sex-on-site and social prototypes along with regular partner willingness. Past behaviour was significant (p = <.001) accounting for an R^2 change of .65. Step two was again significant (p = <.001) with an R^2 change of .09 (R^2 = .73, adjusted R^2 = .73). Step 3 was nonsignificant (p = .19) with an R^2 change of .01 (R^2 = .75, adjusted R^2 = .73). In this regression previous behaviour was again the most significant predictor of regular partner intention followed by regular partner attitude. Unlike the new partner intention regression with both TPB and P/W model variables regular partner willingness was a significant predictor in this case. Despite regular partner willingness predicting further variance in regular partner intention the overall regression did not explain any further variance in regular partner intention when compared to P/W model or TPB independently. However unlike in the new partner intention regression (incorporating both models) inclusion of all TPB

variables did not cause regular partner willingness to drop out of significance. The

amount of variance explained by regular partner willingness was however only 1%.

Table 10. Regular partner intention regressed with TPB & P/WM variables

Step	Variables	B	•eta	R^2 Change
1	Prior Condom Use (RP)	.78***	.81***	.65***
2	SN	.01	.04	.09***
	PBC	.18	.10	
	RP Attitude	.55***	.35***	
3	Unsafe prototype	00	00	.01
	SOS Prototype	.01	.03	
	SOC Prototype	-.15	-.08	
	Safe Prototype	00	-.01	
	RP Willingness	.15*	.11*	

*p<.05, **p<.01, ***p<.001

3.3.8 Predicting unsafe sex per month

The second section of hypothesis two was concerned with determining whether the Theory of Planned Behaviour or Prototype/Willingness model could explain greater frequency in unsafe sexual behaviour. Due to the safe group never having engaged in unsafe sexual behaviour and the unsafe inactive group not engaging in unsafe intercourse at the present time, this section of the hypothesis only dealt with respondents from the unsafe active group (group three, n = 75).

3.3.9 Correlations

The zero order correlations (Table 3) showed a wide array of correlations for unsafe sex per month, the most significant of which were regular partner intention (r = -.49), regular partner past behaviour (r = -.42), regular partner willingness (r = -.34) and regular partner attitudes (r = -.33). New partner intention (r = -.23), new partner willingness (r = -.23) and new partner past behaviour (r = .22) also correlated with unsafe sex per month but more moderately so.

3.3.10 Unsafe sex per month regressed with TPB

The first hierarchical regression (see Table 11) was completed for the Theory of Planned Behaviour with variables being entered according to the structure of the theory. Step one controlled for past behaviour with new and regular partners, step two included new and regular partner attitudes, perceived behavioural control and subjective norm, and the third step included new and regular partner intention. The first level was significant (p = .006) with an R^2 change of .13 (adjusted R^2 = .11), the

second level was nonsignificant (p = .30) with an R^2 change of .06 (R^2 = 19, adjusted R^2 = .12). The final level was significant (p = .02) with an R^2 change of .10 (R^2 = .29, adjusted R^2 = .20). In this regression steps one and three explained significant variance in unsafe sexual behaviour per month, however only regular partner past behaviour and regular partner intention were able to explain significant variance. This is different to the previous regressions (in hypothesis one) where previous behaviour, attitudes and perceived behavioural control were predictive of intention. Further, Table 2 shows that frequency of unsafe sex was most significantly correlated with regular partner intention, regular partner past behaviour, regular partner attitudes and perceived behavioural control. However once past behaviour was controlled for and regular partner intention was included the other predictors became nonsignificant.

As would be expected both significant TPB predictor variables (regular partner past behaviour and regular partner intention) were significantly (and negatively) correlated with USPM indicating that increased intention to use condoms and more frequent use of condoms in the past are negatively correlated with frequency of unsafe sex.

Table 11. Group three unsafe sex per month regressed with TPB variables (n=75)

Step	Variables	B	•eta	R^2 Change

1	Prior Condom Use (RP)	-2.05**	-.38**	.13**
	Prior Condom Use (NP)	.19	.04	
2	SN	.81	.14	.06
	PBC	-1.40	-.18	-
	NP attitude	2.06	.22	-
	RP attitude	-1.48	-.20	-
3	NP intention	-.26	-.03	.10*
	RP intention	-2.43*	-.49*	-

*p<.05, **p<.01, ***p<.001

3.3.11 Unsafe sex per month regressed with P/W model

Next, A hierarchical regression was completed for the Prototype/Willingness model (see table 12). Variables were again entered according to the structure of the theory. The first step controlled for previous condom use with new and regular partners, the second step included safe, unsafe, social and sex-on-site prototypes, subjective norm, new and regular partner attitudes. The third step included new and regular partner willingness and the fourth step included new and regular partner intention. The first step was highly significant (p = .006 with an R^2 change of .13 (adjusted R^2 = .11), the second step was nonsignificant (p = .17) with an R^2 change of .12 (R^2 = .26, adjusted R^2 = .15). The third step was nonsignificant (p = .8) with an R^2 change of .01

(R^2 = .26, adjusted R^2 = .13) and the fourth step was significant (p = .018) with an R^2 change of .09 (R^2 = .35, adjusted R^2 = .22). In addition to the significant correlations (see Table 2) between unsafe sex per month, regular partner intention, regular partner past behaviour, regular partner attitudes and perceived behavioural control regular partner willingness and unsafe sex prototype were also significantly correlated with unsafe sex per month. However when regular partner past behaviour was controlled for and regular partner intention was included in the regression these variables became nonsignificant. It should also be noted that although the Prototype/Willingness model has a slightly higher R^2 value than the Theory of Planned Behaviour model (r^2 = .35 to r^2 = .29 respectively) it includes a further five variables and the only statistically significant predictors of unsafe sexual behaviour in this case were again regular partner past behaviour and regular partner intention.

Table 12. Group 3 unsafe sex per month regressed with P/W model variables (n=75)

Step	Variable	B	•eta	R^2 Change
1	Prior Condom Use (RP)	-2.05**	-.38**	.13**
	Prior Condom Use (NP)	.19	.04	

2	SN	.74	.13	.12
	Attitude NP	.75	.08	
	Attitude RP	-1.11	-.15	
	Unsafe Prototype	-.88	-.10	
	Prototype SOS	-2.49	-.24	
	Prototype SOC	2.33	.23	
	Prototype Safe	-1.13	-.12	
3	NP Willingness	-.19	.02	.01
	RP Willingness	-.58	-.07	
4	RP Intention	-2.46**	-.49**	.09*
	NP Intention	-.43	-.07	

*p<.05, **p<.01, ***p<.001

As none of the Prototype/Willingness Model variables were able to explain additional significant variance in unsafe sexual behaviour per month, a regression incorporating variables from both theories was not necessary.

3.4 Hypothesis Three.

Hypothesis three intended to determine whether participants were experiencing the proposed situational variables and to determine whether there was a significant difference in the frequency of those experiences between risk groups. Due to group one having never had unprotected sex they did not fill out the situational variable section and as such were not included in this hypothesis. Any comparisons will relate solely to groups two (unsafe inactive) and three (unsafe active).

3.4.1 Significant group differences in situational variables

To determine whether there were significant group differences a series of one way ANOVAs were completed. Only one ANOVA in this section was significant between risk group and internet venue at $F(1,96) = 4.012$, $p = .048$ these results suggest that group three (M = .13, SD = 1.53) reported significantly more partners over the internet than group two (M = -.62, SD = 1.50). ANOVAS between potential partner attractiveness/fitness and risk group was nonsignificant $F(1,96) = .079$, $p = .779$, as was risk group by partner negotiation $F(1,96) = .166$, $p = .685$, risk group by self negotiation $F(1,96) = 1.219$, $p = .272$, risk group by sex on site venue $F(1,96) = .2.272$, $p = .135$, risk group by bar venue $F(1,96) = 3.362$, $p = .070$, risk group by social venue $F(1,96) = .331$, $p = .567$. ANOVAS were also nonsignificant between risk group and alcohol use $F(1,96) = .279$, $p = .599$, between depression and risk group $F(1,96) = 1.214$, $p = .273$, risk group and stressful event $F(1,96) = 1.114$, $p = .294$ and risk group and erectile problems $F(1,96) = .020$, $p = .888$. These results suggest that risk groups

two and three are only significantly different in terms of the frequency they reported meeting unsafe sexual partners over the internet.

3.4.2 Means and Standard Deviations

Table 13 shows the means and standard deviations for the situational variables, in all cases a score of -2 indicated that participants had never had unprotected sex while experiencing the selected variable and a score of 2 indicates that they always experienced the variable prior to or during unsafe intercourse. The situational variables with the highest mean scores are potential partner masculinity (M = 1.10) and potential partner fitness/attractiveness (M = 1.12) indicating that within this sample participants responded as generally having unsafe sex with more masculine and attractive partners. The lowest mean scores included drug use (M = -1.10), erectile problems (M = -1.19), and meeting partners at sex on site venues (M = -1.39) indicating that participants tended to report seldom having had unprotected sex after experiencing erectile problems, after taking illicit drugs or having met partners at sex on site venues. All other mean scores indicate that participants tended to experience the chosen situational variables relatively infrequently; for instance partner negotiation had a mean score of M = -.30, alcohol use had a mean score of M = -.10 and self negotiation had a mean score of M = -.70.

3.4.3 Correlations

The correlation matrix (see Table 14) between situational variables and Theory of Planned Behaviour variables demonstrates that although there are no significant correlations between unsafe sex per month and the situational variables there are several significant correlations between a number of Theory of Planned Behaviour variables and situational variables. Specifically, there are high numbers of correlations between situational variables and new partner past condom use, perceived behavioural control, new partner attitudes, and new partner intentions.

Table 13. Means and standard deviations for situational variables (n=97.)

Variable	Overall M(SD)	Group 2 M(SD)	Group 3 M(SD)
Partner masculinity	1.10(.93)	1.27(.94)	1.05(.93)
Partner negotiation	-.31(1.30)	-.41(1.44)	-.28(1.27)
Self negotiation	-.70(1.23)	-.95(1.09)	-.63(1.26)
Venue sex-on-site	-1.39(1.20)	-1.73(.77)	-1.29(1.28)
Venue bar	-.76(1.37)	-1.23(1.11)	-.63(1.41)

Venue social event	-.80(1.35)	-.95(1.32)	-.76(1.36)
Venue internet	00(1.55)	-.62(1.50)[a]	.13(1.53)[b]
Drug use	-1.10(1.32)	-1.47(1.12)	-.99(1.36)
Alcohol use	-.10(1.31)	-.24(1.41)	.01(1.29)
Depression	-.86(1.31)	-1.14(1.06)	-.79(1.37)
Stressful event	-.67(1.40)	-.95(1.28)	-.59(1.43)
Partner attractiveness/fitness	1.12(.95)	1.07(.99)	1.13(.96)
Erectile problems	-1.19(1.07)	-1.23(1.02)	-1.19(1.09)

Note: Means with different subscripts are significantly different at the p<.05 level, variables were measured on a scale from -2 to 2

The most significant correlations for new partner past behaviour are the internet as venue (r = -.46) followed by social venue (r = -.22). Due to the manner in which past behaviour and situational variables were scored this indicates that as participants reported higher levels of past unprotected sex with new partners, they were more likely to have met their partners on the internet or through social encounters. The next highest correlation in terms of new partner past behaviour was

Table 14. Zero order correlations between TPB variables and situational variables, n=97

Variable.	Freq. Unsafe Sex	Past Behav. (NP)	Past Behav. (RP)	Perc. Behav. Control	Subj. Norm	Attit. (NP)	Attit. (RP)	Intent. (NP)	Intent. (RP)
1. Erect. Prob.	-.14	-.07	.02	.03	.05	-.18	.02	-.08	.07
2. Part. Masc.	.07	.29**	.09	.06	.20	-.06	.02	-.10	-.03
3. Part. Neg.	.01	.31**	.10	.10	.16	.14	.12	.11	.09
4. Self Neg	-.02	-.06	-.05	-.16	.02	-.20	-.01	-.17	-.08
5. Venue SOS	.12	-.15	.04	-.32**	-.09	-.15	.03	-.19	.08
6. Venue Bar	-.03	-.15	.03	-.25*	-.01	-.25*	-.10	-.23*	-.03
7. Venue SOC	-.09	-.22*	-.08	-.20	-.08	-.11	-.11	-.15	-.02
8. Venue INT	.09	-.46**	-.20	-.29**	-.20*	-.28**	-.14	-.34**	-.08
9. DRUG	.04	-.22*	-.05	-.19	-.11	-.11	.05	.22*	-.08

10. ALC	.09	-.34**	-.09	-.32**	-.16	-.39**	-.18	-.31**	-.12
11. Depres.	.06	-.17	-.08	-.20	-.13	-.30**	-.15	-.19	-.08
12. Stress. Event	-.07	-.20*	-.04	-.26**	-.05	-.33**	-.13	-.21*	-.03
13. Attract/Fit	-.12	.05	.01	.16	-.06	-.09	-.02	.06	00

Note: Freq. Unsafe sex = frequency of unsafe sex, Past Behav. (NP) = new partner past behaviour, Past. Behav. (RP) = regular partner past behaviour, Perc. Behav. Control = perceived behavioural control, Subj. Norm = subjective norm, Attit (NP) = new partner attitude, Attit. (RP) = regular partner attitudes, Intent. (NP) = new partner intention, Intent. (RP) = regular partner intention, Erect. Prob. = erectile problems, Part. Masc. = partner masculinity, Venue SOS = Venue sex-on-site, Venue SOC = social venue, Venue INT = venue internet, DRUG = drug use, ALC = alcohol use, Depres. = depression, Stress. Event = stressful event, Attract/Fit = potential partner attractiveness/fitness, * = significant at p = <.05, ** = Significant at p=<.01

alcohol use (r = - .34) and drug use (r = - .22) indicating again (due to the manner in which the variables were scored) that as participants engaged in higher levels of past unprotected sex with new partners they also reported having consumed alcohol more often and (although to a less significant level) drugs on those occasions. As participants reported higher levels of unsafe sex in the past they also reported having done so during a periods in which they were experiencing stressful events (r = -.20). Participants who scored higher in unsafe past behaviour also scored lower in potential partner negotiation (where a partner opts out of using condoms) (r = .31) and lower levels of potential partner masculinity (r = .29).

Perceived behavioural control also shared significant negative correlations with a number of situational variables including alcohol use (r= - .32), sex-on-site venue (r=-.32), internet venue (r=-.29), stressful events (r=-.26) and bar venue (r=-.25). These correlations indicate that as a participant's perceived capacity to use condoms effectively or consistently fell, their past experience of having consumed alcohol prior to (or during) unsafe sex, having met partners at sex on site venues, on the internet or after/while experiencing stressful events tended to increase.

Again regular partner attitudes did not significantly correlate with situational variables, however new partner attitudes toward condom use did show a number of negative correlations. In this case new partner attitudes were significantly correlated with alcohol use (r = -.39), stressful events (r = -.33), depression (r = -.30), internet

venue (r = -.28) and bar venue (r = -.25). These correlations indicate that where participants score lower on new partner condom attitudes they tended to respond higher in terms of having consumed alcohol, experienced stressful events, been depressed or having met partners on the internet or at bars immediately prior to or during unsafe sexual episodes.

Although regular partner intention was again not significantly correlated with situational variables new partner intention was significantly correlated with internet venue (r = -.34), alcohol use (r = -.31), venue bar (r = -.23), drug use (r = -.22) and stressful events (r = -.21). These scores indicate that participants who score higher in terms of intention to use condoms with new partners also tended to score lower in terms of meeting partners at bars or on the internet, having consumed alcohol, having used drugs or experiencing a stressful event prior to unsafe sex.

Situational variables were then compared to P/W model variables to determine any further significant correlations (see table 15).

Again, in this correlation matrix the pattern of inter-correlation between new partner variables despite a lack of correlation between regular partner variables reappeared. The most significant correlation was between new partner willingness and venue internet (r = -.41), due to the scoring of the willingness variable (willingness in this study refers to willingness to use condoms) negative correlations indicate that greater willingness to engage in safe behaviour is correlated with fewer

instances of meeting unsafe partners on the internet. Similarly new partner willingness was correlated with depression during sexual episode (r = -.33), meeting partners at sex on site venues (r = -.30), meeting partners at bars (r = -.25) and stressful events (r = -.24). This would indicate that participants scoring higher on willingness to use condoms with new partners tended to report fewer instances of depression, stressful events and having met unsafe sexual partners at sex on site venues and at bars. The same pattern appears in correlations between new partner willingness and drug use (r = -.23) and alcohol use (r = -.23).

Table 15. Zero order correlations between P/W model variables and situational variables, n=97.

Variables	Willing (NP)	Willing (RP)	Proto. US	Proto. SOS	Proto SOC	Proto SF	Freq. Unsafe Sex
1. Erect. Prob.	-.17	-.04	.17	.11	-.10	.06	-.14
2. Part. Masc.	.05	.06	-.07	-.03	-.09	.04	.07
3. Part. Negot.	.10	-.03	.04	.22*	.08	.21*	.01
4. Self Negot.	00	-.15	.24*	.23*	.10	.18	-.02
5. Venue SOS	-.30**	-.16	.20*	.12	-.14	-.17	.12
6. Venue Bar	-.25*	-.08	.21	.10	.05	-.02	-.03
7. Venue SOC	-.18	-.15	00	.06	.05	-.13	-.09
8. Venue INT	-.41**	-.10	.19	.01	-.11	.01	.09
9. DRUG	-.23*	-.04	.22*	-.01	-.12	-.14	.04
10. ALC	-.23*	-.15	.29**	.06	-.13	-.08	-.09
11. Depression	-.33**	-.18	.19	-.10	-.10	-.10	.06
12. Stress. Event	-.24*	-.19	.25*	.02	-.14	-.02	-.07

13. Part attract/fit	.06	.11	-.08	00	-.10	-.07	-.12

Note: Willing (NP) = new partner willingness, Willing (RP) =regular partner willingness, Proto. US = unsafe prototype, Proto. SOS = sex on site prototype, Proto. SOC = social prototype, Proto. SF = safe prototype, Freq. Unsafe Sex = frequency of unsafe sex, Erect. Prob. = erectile problems, Part. Masc. = partner masculinity, Part. Negot. = partner negotiation, Self Negot. = self negotiation, Venue SOS = venue sex on site premises, Venue SOC = venue social event, Venue INT = venue internet, DRUG = drug use, ALC = alcohol use, Stress. Event = stressful event, Part attract/fit = partner attractiveness/fitness, * = significant to p = <05, ** = significant to p = <.01

4 Chapter Four.

4.1 Discussion

This study aimed to test three hypotheses regarding the TPB and P/W model in terms of the capacity of each to predict intention to use condoms and frequency of unsafe sex as well as the relationship between the proposed situational variables, frequency of unsafe sex and model variables.

The first hypothesis sought to determine whether participants from each risk group (safe, unsafe inactive and unsafe active) would report significant differences on each of the individual models' measures. The study also aimed to determine whether variance in either intention to use condoms or frequency of unsafe sex could be explained more fully by the TPB or the P/W model. Finally, the study aimed to determine how frequently participants experienced each of the proposed situational variables and whether there were significant differences between risk groups and experience of those variables.

4.1.1 Group Differences

The first hypothesis sought to compare differences between participant risk group and the various constructs of the P/W model and TPB. It was expected that the participants in the unsafe inactive and unsafe active groups would score lower on intention to use condoms, lower on attitudes towards condom use, lower perceived capacity to use condoms, lower perceived subjective norm to engage in condom use, lower on willingness to engage in protected sex, higher on measures of unsafe

prototype and sex on site prototype and lower on safe sex and social prototypes than the safe group.

This hypothesis was only partially supported as significant group differences only appeared between the unsafe active group and the safe and unsafe inactive groups. No significant differences were found between the unsafe inactive and safe group on any measure (except regular partner willingness) and no significant group differences were found in terms of prototype evaluations between any risk group.

4.1.2 Theory of Planned Behaviour variables

There were significant group differences present in all TPB measures, with the exception of new partner intention between the unsafe inactive and unsafe active groups (which approached significance at $p = .056$). Although the initial hypothesis that the unsafe active group would score lower on most measures than the safe group was supported, in the current sample the safe group and unsafe inactive did not tend to show significant differences in terms of the TPB and P/W model variables. It is possible, and indeed likely, that due to the change in behaviour experienced by the unsafe inactive group (i.e. no longer engaging in unsafe sex) their attitudes, subjective norms, perceived behavioural control and intentions regarding condom use have also changed.

4.1.3 Willingness

In line with the observed differences in terms of TPB measures there were significant group differences between the unsafe active group, the unsafe inactive group and the safe group in terms of both new partner and regular partner willingness. In this case

however there were also significant group differences between the safe and unsafe inactive group in terms of regular partner willingness (to use condoms). The significant group differences in terms of regular partner willingness followed the hypothesised direction with the unsafe active group scoring lowest, followed by unsafe inactive and safe group respectively. This result is interesting as it indicates that participants who are currently engaging in unsafe sex are more willing to engage in unsafe sex with regular partners compared to those who do not currently engage in unsafe sex but who have in the past, and that group is, in turn, more willing engage in unsafe activity with regular partners than those who have never engaged in unsafe sex.

However these group differences did not translate to new partner willingness. In this case the safe and unsafe inactive groups were similar in terms of new partner willingness scores and both were significantly more willing to opt for safer sexual options than the unsafe active group. This would tend to indicate that although members of the sample who have had unsafe sex in the past but who currently do not engage in this activity may be somewhat more willing to engage in unsafe sex with regular partners than the safe group they are not willing to do so with casual partners.

4.1.4 Prototypes.

Prototypes have been theorised to influence behaviour and are one of the two measures included in the Prototype/Willingness model to extend the Theory of Planned Behaviour (Gibbons et al., 1998). It was expected that there would be significant differences in prototype evaluation between risk groups. However, no significant differences in prototype scores between risk groups were found in the

overall multivariate analysis, and although the univariate results for risk group by safe prototype were marginally significant the mean differences between risk groups were non-significant. The hypothesised differences between the unsafe active, unsafe inactive, and safe groups were not found, thus this section of the hypothesis was unsupported. In terms of the prototype measures, although there were no significant differences between groups in terms of their prototype evaluations, those prototypes which were hypothesised to have been evaluated more negatively (sex on site prototype, M = 00, and unsafe prototype, M = -.23) had lower overall means than those hypothesised to be evaluated more positively (safe prototype, M = .90, and social prototype, M = .71). These results support the proposition that participants viewed prototypical individuals who engage solely in unsafe sex and those who engage with partners at sex-on-site venues more negatively than those who engage solely in safe sex and those who meet partners at social events.

The prototype willingness model states that: a) where a prototype is more positive; or, b) where a prototype is similar to an individuals' self prototype, the behaviour is more likely to be performed (Gibbons et al, 1998). In the case of the prototypes under measurement in this study it is possible that group differences may lie not in the evaluation of these prototypes but rather in the comparison between the target prototypes and the individuals' self prototype. In support of this hypothesis, Rivis et al. (2006) found that while prototype evaluations were predictive of intention, that perceived prototype similarity had greater predictive value. It should also be noted however, that prototype similarity is generally not measured in Prototype/Willingness Model studies (Gibbons et al., 1998: Myklestad & Rise, 2006) and that Rivis et al.

(2006) also found that prototype evaluation alone increased the ability of the TPB to predict intention.

It is also likely that since the P/W model was intended to predict behaviour in adolescents, the older mean age in the current sample (21.7 years) limited the importance of prototypes and social comparison in determining behaviour in the older sample due to a well formed sense of self identity. Consequently, the prototype/willingness model would be less applicable in this case. To determine whether significant group differences exist in terms of perceived prototype similarity in older samples additional research would be required.

Although there were significant differences between the unsafe group and other groups on the majority of measures, the lack of significant differences in terms of prototypes and lack of significant difference between the safe group and unsafe inactive means that this hypothesis was only partially supported.

4.1.5 Predicting Intention

The second hypothesis sought to determine which theory, and which associated variables within each theory, accounted for the greatest variation in intention to use condoms. It was expected that the P/W model would be able to explain greater variance in intention to use condoms with both new and regular partners when compared to the TPB. This section of hypothesis two was not supported; however, the results of these regressions are still of interest and are reviewed in the following sub-section.

4.1.6 Variance in intentions explained by the TPB

In terms of new partner intention the TPB was able to account for 60% of overall variance. In this case, the most significant predictors were found to be prior condom use, new partner attitudes and perceived behavioural control. This compares favourably with the zero-order correlations in which the highest correlations were between new partner intention and new partner attitude, followed by new partner past behaviour, perceived behavioural control and finally subjective norm. However, in the regression subjective norm became non-significant indicating that any variance explained by subjective norm was absorbed by another variable.

In terms of regular partner intention the theory of planned behaviour was able to account for 73% of variance and in this case only regular partner past behaviour and regular partner attitudes accounted for significant variance in intention. Regular partner intention was most significantly correlated with past behaviour, regular partner attitudes, perceived behavioural control followed by subjective norm. However, when past behaviour was controlled for, only regular partner attitude was significant indicating that in this case the variance explained by either perceived behavioural control or subjective norm was absorbed by past behaviour or attitudes.

4.1.7 Variance in intention explained by P/W model

Regressions for new and regular partner intention and Prototype/Willingness model were able to account for the same amount of variance in terms of both new partner and regular partner intention as the TPB. Further, a combination of both TPB and P/W model variables did not explain any significant further variance in either new partner or regular partner intention. This was despite the fact that both new and regular

partner intention were significantly correlated with willingness variables and the unsafe prototype. This indicates that any variance potentially explained by either of these two variables was absorbed by one (or more) of the TPB variables. This result was not in line with Rivis et al. (2006) who found that the addition of prototypes did in fact increase the amount of variance in intentions explained by the TPB. Two points, however, should be noted: First, Rivis et al.'s sample had a mean age of 16.6 years compared to the current samples' mean age of 21.7 years. As stated earlier the Prototype/Willingness model was designed for use with adolescents and such differences in age may limit the theories' applicability in the current sample. Secondly, Rivis et al. measured not only prototype evaluations but also the participants' perceived similarity between themselves and those evaluations. This was found be more predictive of intention than prototype evaluations alone.

In terms of the variables which predicted intention to use condoms in this study, it was found that new partner intention was significantly predicted by new partner past behaviour, new partner attitudes toward condom use, perceived behavioural control and to a lesser extent new partner willingness (although willingness was only significant when perceived behavioural control was not included). Regular partner intention was predicted by regular partner past behaviour, regular partner attitudes and (again), to a lesser extent, regular partner willingness. Although willingness only added an additional r^2=.01 in regular partner intention, it was still significant after perceived behavioural control was added despite there being no difference in variance explained.

The results in terms of the most predictive TPB variables are (unlike the role of prototypes in predicting intention) in line with Rivis et al. (2006) who found that attitudes and past behaviour were the most significant TPB predictors of intention followed by perceived behavioural control (subjective norm was nonsignificant in their study as in the current one). Gredig et al. (2006) similarly found that attitudes were one of the most predictive TPB variables in terms of intention with subjective norm again being nonsignificant. The findings in terms of the predictive capacity of past risk behaviour to predict intention was also in line with the results of Hardeman, Pierro, and Mannetti (1997) who also found that past risk behaviour significantly predicted intention to use condoms. These cross-study similarities in terms of the most significant predictor variables coupled with the lack of significance of most Prototype/Willingness model variables and the more advanced age of the current sample lend some validity to the hypothesis that the Prototype/Willingness model may not be as effective in measuring intentions in an older sample.

4.1.8 Predicting frequency of unsafe sex

In terms of frequency of unsafe sex it was expected that the P/W model would be able to explain significant additional variance beyond that explained by the TPB. However, the results showed that no P/W model variable was able to predict additional significant variance in unsafe sex per month. This study found that the TPB was able to explain 29% of the variance ($r^2 = 0.29$) in frequency of unsafe sex and the Prototype/Willingness model was able to explain 35% of variance ($r^2 = .35$). However, the additional variance explained by the P/W model was largely attributable to the number of additional variables in the P/W model rather than to any specific P/W model variable's ability to predict unsafe sex.

A comparison of the correlations (see Table 2) showed that frequency of unsafe sex was correlated significantly with regular partner intention, past behaviour, regular partner attitudes and perceived behavioural control in terms of TPB variables as well as being significantly correlated with regular partner willingness. However, the regression found that only regular partner past behaviour and regular partner intention were predictive of unsafe sex, and all other variables became nonsignificant. This was contrary to the findings of Gibbons et al. (1998) who reported that the Prototype/Willingness variables were significant predictors of unsafe sex above TPB variables. A point of similarity between the two studies is that Gibbons et al. found that behavioural expectation, which they used instead of intention, was a more significant predictor variable than behavioural willingness. These results are also partially supported by the findings of Yzer et al. (2001) who found that actual condom use is significantly predicted not only by intentions but also by habit (i.e. past behaviour), despite being partially contradicted by Gibbons et al.

These findings were contrary to the stated hypothesis that the P/W model would be able to explain greater variance in unsafe sexual behaviour than the TPB, and as such, the second section of hypothesis two was unsupported.

Again, it should be pointed out that the current sample was older than those used by other P/W model studies (including the college age sample used in one study by Gibbons et al.) and as such the predictive capacity of the P/W model may be limited. It may also be the case that where participants are older a more sensitive prototype

measure such as the prototype/self comparison measure is necessary; however more research is required to determine this.

4.1.9 Situational Variables.

Finally, it was expected that participants would report having experienced a range of the proposed situational variables prior to past instances of unsafe sex. However only the mean scores of partner attractiveness/fitness and partner masculinity stood out as being particularly significant and thus hypothesis three was only partially supported. Despite these limited findings, the correlations and significant differences revealed some interesting results.

Comparison of the proposed situational variables indicated that participants tended not to report experiencing the majority of situational variables with great frequency. However, it was found that that the mean score for partner masculinity and partner attractiveness/fitness was considerably higher than the other situational variables. This would indicate that participants scored the partners with whom they had engaged in unsafe sexual intercourse as being more attractive, fit and masculine (in line with research reported by Kraft et al., 2006). Kraft et al. suggested that these results may suggest that more attractive partners could be considered an opportunity which should not be missed and therefore reduce ones capacity to negotiate for condom use; however, the scores for partner negotiation were considerably lower than partner masculinity and attractiveness. A more likely explanation (also suggested by Kraft et al.) is that participants in their study believed

that individuals infected with HIV would look significantly different to 'healthy' individuals. It is possible therefore that individuals are more willing to engage in unsafe sex with partners who appear fitter and therefore seem less likely to be infected with HIV.

Comparison of risk-group differences in terms of situational variables indicated no significant difference between groups on any measure with the exception of the internet as venue for meeting potential partners. The higher mean score for the unsafe active group on this measure indicates that they tend to meet partners with whom they have engaged in unsafe sex on the internet more often than the unsafe inactive group, a finding supported by the 2006 New Zealand AIDS foundation online and offline survey results.

In addition the results of this study suggest that past experience has a significant affect on an individuals' perceived behavioural control and thus on the intention variable, particularly in terms of sex with new partners. According to the TPB the proximal determinant of behaviour is intention (Bennett & Bozionelos, 2000; Reinecke et al., 1996), intention is in turn influenced by perceived behavioural control. The situational variable construct is measured in terms of a participant's experience with that variable (such as alcohol use) during past experiences with unsafe sex; but the situational variables do not correlate significantly with frequency of unsafe sex. The significant correlations between situational variables and perceived behavioural control suggest that experience of these variables has a significant effect on an individuals' perceived behavioural control and thus on the intention variable itself. Evidence for this conclusion comes from a number of findings within the study. First, situational

variables correlate significantly (and consistently) with new partner intention, new partner willingness and perceived behavioural control but not with regular partner intention or willingness. Second, the findings regarding the prediction of intention demonstrated that perceived behavioural control was only predictive of new partner intention, not regular partner intention. This suggests that where participants have experienced the situational variables prior to unsafe sex these experiences may have influenced their control beliefs (i.e. beliefs which make up the perceived behavioural control construct). These control beliefs (and thus perceived behavioural control) are likely to be more important in terms of new partners where perceived capacity to opt for condom use may be reduced, rather than regular partners where a pattern of behaviour may be more established. More research is required to make a definitive statement on this.

4.2 Strengths and Limitations.

There are a number of interesting conclusions and implications that can be drawn from this study; however, it is important to note a number of strengths and limitations to the current research.

4.2.1 Strengths.

The current study closely followed the methodology of a number of previous studies which have been able to effectively predict health behaviours and unsafe sex. In addition, the sample size of 158 was considered sufficient given the number of variables under investigation.

The amount of variance explained in terms of unsafe sex was similar to the amount explained by other studies according to the meta analysis by Sheeran et al. (1999) and the most highly predictive variables in this study (intention, past behaviour and attitudes) were also the most significant in their meta-analysis. Subjective norm, which was the least significant predictor in their meta-analysis, was also the least significant of the Theory of Planned Behaviour variables in this study.

Finally, the use of the internet helped to ensure anonymity which, combined with its ease of use and the manner in which it allowed participants to complete the survey without the hassle of needing to post responses or take time to complete the survey when it may not be convenient may have increased response rates. However, there are limitations regarding the use of the internet for data collection which will be discussed in the following section.

4.2.2 Limitations

The current study was cross-sectional in nature rather than longitudinal. This means that instead of predicting future behaviour it explained variance in participants' past and estimated current behaviour, and measured all variables at the same point in time. This implies a stability in the variables measured which may not exist in practise. Indeed, Bennett and Bozionelos (2000) have suggested that the theory of planned behaviour becomes less predictive of behaviour as the distance between measurement of TPB variables and measurement of behaviour increases. In addition,

use of the internet in collecting data may be useful in some ways however the anonymity of the internet makes it difficult to be certain that participants are filling out the survey only once; however, it does seem unlikely (given the length of the survey) that participants repeatedly completed it. It is also impossible in the current survey to ensure that those participants who completed the survey were in the target demographic. However, the number of participants who were outside the age range and needed to be excluded would tend to suggest that participants were reasonably honest in this regard. Furthermore, the study was self report, potentially leading to a 'self-selection' bias; however, the sample size was considered sufficient to test the hypotheses in question.

4.2.3 Implications

The main implication of this study is the importance of measuring constructs separately for new and regular partners when attempting to explain variance in unsafe sex. By performing these measurements separately, this study was able to determine not only which underlying Theory of Planned Behaviour and Prototype/Willingness model constructs predicted unsafe sex, but also to gain some evidence that much of the unsafe sexual intercourse in this sample appears to be occurring with regular partners. This is a finding which could not have been determined satisfactorily if intention, attitudes and willingness had each been measured as single factors. Indeed, it may have been possible to gain more insights into prediction of unsafe sex had this study measured unsafe sex both in terms of new and regular partners.

Secondly, although the Prototype/Willingness model may have been more successful in terms of unsafe sexual prediction in some previous studies, it is important to note that where older participants or participants of a mixed age range are concerned or where parsimony is a significant issue it may be better to opt for the Theory of Planned Behaviour.

4.2.4 Implications for further research.

Additional studies with larger sample sizes are needed to confirm the current findings, as well as studies where the TPB variables are measured prior to the measurement of actual behaviour. However if they are correct (and given the current sample size it is likely that this is so) future research should focus on the following.

The results of the current study suggest that little variation in frequency of unsafe sex in this sample is accounted for by new partner variables. Although unsafe casual sex is considered one of activities with is associated with higher risks of HIV infection it should be pointed out that in New Zealand (according to Saxon, Dixon, and Hughes 2006) more than 40% of respondents in the Gay Auckland Periodic Sex Survey who are in a relationship reported having unprotected anal sex with a regular partner less than one month into their relationship. This increases to around 60% between one to five months. As noted previously by Kallings (2008) HIV antibodies are not

detectable from basic antibody tests for between 3-6 weeks and the level of the virus can be high up to two weeks before antibodies appear. There is clearly the potential of significant infection risk for these individuals and further study regarding whether (in terms of the current study's results are concerned) regular partners are limited to monogamous relationships or extend to regular casual sex partners is required.

It is also likely that measuring all TPB variables (including subjective norm and perceived behavioural control) in terms of new and regular partners would be beneficial. Doing so could aid in the prediction of unsafe sex, and would make the results of such studies more relevant for developing and implementing health policies and HIV and STI interventions by enabling researchers to pinpoint fluctuations in unsafe sexual behaviour and to adapt HIV/STI policies accordingly.

Reinecke, et al. (1996) have suggested that temporal instability (changes in attitudes, subjective norm, perceived behavioural control and intention over time) may be a potential source of variability in the predictive capacity of the TPB. In terms of safe sex prediction, it may be worthwhile measuring longitudinally whether the TPB constructs do indeed change over time and to determine whether these changes correlate with changes in partnership status. The current study suggested that the unsafe inactive group (despite having engaged in unsafe sexual behaviour in the past) did not show significant differences in TPB measures when compared to the

safe group. They did, however, demonstrate significant differences when compared to the unsafe active group. It is likely that these results are due to a change in cognitions for this group correlated with a change in their behaviour. Further, Bennett and Bozionelos (2000) have suggested that the TPB is less predictive of behaviour the longer the period between measurement of TPB variables and measurement of actual behaviour. These results may be evidence for the existence of temporal instability and its effect on behaviour.

Given that the current study was only able to reach an a r^2 value of .29-.35 there is additional research that needs to be completed to augment the Theory of Planned Behaviour to improve prediction of unsafe sexual behaviour and this study do not suggest that the P/W model should be abandoned (particularly due to its success in studies regarding other behaviours). It is possible that to accurately use this model in sexual behaviour research the comparison between self prototype and the safe and unsafe prototypes should be measured and compared. Although Gibbons et al (1998) and Myklestad and Rise (2007) did not measure prototypes in this manner Rivis et al. (2006) did make such a distinction and found that although prototype evaluation is predictive of intention, prototype similarity is even more predictive. Unfortunately, Rivis et al. (2006) did not extend their study to examine whether prototype similarity is also more predictive of behaviour than prototype evaluation. It is also likely that the prototype willingness model is more suited to studies focussing on younger participants.

4.3 Conclusions

Although many of the hypotheses in this case were rejected or only partially supported three main conclusions can be drawn. Firstly there was little difference in the predictive capacity of the Theory of Planned Behaviour when compared to the Prototype/Willingness model in this sample. Due to the likelihood of increased attrition rates with longer surveys it may be more parsimonious to use the TPB as the P/W model variables greatly extend the required length of surveys due to the manner in which the prototypes are measured. In studies which include or focus on older participants, using the TPB for behaviour prediction may increase the number of participants who complete the surveys and thus increase their generalisability.

Secondly, the results of this study suggest that members of the New Zealand MSM community (within this age range) are largely engaging with unsafe sexual behaviour with regular partners rather than casual ones. It is possible (and even likely) that this would suggest that the MSM community has come to grips with the risks of casual unsafe sexual behaviour however they may be underestimating the risks of unsafe sexual behaviour with regular partners. In addition, the definition of regular partner in this study was quite broad, making it impossible to determine whether sexual activity is occurring in long-term monogamous relationships, short-term monogamous relationships, long-term open relationships or between regular sexual partners. Given the evidence of frequent unsafe sex between regular partners who have been together for as little as a month (Saxon, Dixon, & Hughes, 2006) it would

clearly be of benefit for HIV/AIDS policy-makers to focus on short-term regular partners in terms of HIV education and intervention.

Thirdly, this study lends further evidence to the need to measure separately new and regular partners when undertaking studies of unsafe sexual behaviour even to the level of measurement of model constructs such as intention, attitudes, subjective norm and perceived behavioural control. Although many studies previously have only measured such constructs in general terms they have also (in many cases) resulted in more limited predictive capacity, failure to distinguish between regular and casual partners may not only be partially to blame for this but also limit the capacity for such research to be applied effectively to safe sex literature, interventions and policy. Clearly being able to determine from year to year whether members of the MSM community are tending to have unsafe sex with either regular or casual partners as well as determining the lengths of these relationships would help to target HIV/safe sex messages and increase their effectiveness.

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Appendix 2: Human Ethics approval.

Ref: HEC 2008/71

9 July 2008

Mr Lance Thompson

3/3 Winchester Street

Merivale

CHRISTCHURCH 8014

Dear Lance

The Human Ethics Committee advises that your research proposal "Situational variables associated with unsafe sexual behaviour in an MSM population." has been considered and approved.

Please note that this approval is subject to the incorporation of the amendments you have provided in your email of 8 July 2008.

Best wishes for your project.

Yours sincerely

Dr Michael Grimshaw

Chair, Human Ethics Committee

Appendix 2: Survey.

PDF Export

Situational variables associated with unsafe sexual behaviour in an MSM (males who have sex with males) population

University of Canterbury

Department of Psychology

Section 1

When filling out the survey, tick the boxes which most accurately describe your experience. Where a response is required on a scale an answer of 2 will be considered the highest response, -2 the lowest response, and 0 being average or neutral.

Some questions may appear to be asking very similar things but are in fact asking different things. Please answer them as honestly as possible.

Please complete the following.

Q1.1: What is your age?

<u>Please write your answer here:</u>

Q1.2: I currently live in?

Please write your answer here:

Q1.3: How were you referred to this survey?

Please choose the appropriate response for each item:

Social networking site (MySpace Facebook etc)	Website referral (craigslist.org gay.co.nz etc)	Magazine advertisement	Poster advertisement	Referred by friend/family member
☐	☐	☐	☐	☐

Q1.4: Compared to most other people I consider myself to be:

Please choose the appropriate response for each item:

Highly unattractive -2	-1	0	1	Highly attractive 2
☐	☐	☐	☐	☐

Q1.5: How satisfied are you with your weight?

Please choose the appropriate response for each item:

	-2	-1	0	1	2	
Highly unsatisfied	☐	☐	☐	☐	☐	Highly satisfied

Q1.6: I would consider my sexual orientation to be mostly/solely:

Please choose the appropriate response for each item:

	Hetrosexual	Bisexual	Homosexual
	☐	☐	☐

Q1.7-14: Below is a list of things you may have felt or done. Please tick the most appropriate box or the number of times they have occurred in the past week.

Please choose the appropriate response for each item:

	Rarely or none of the time (Less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-6 days)
I felt that I could not shake off the blues even with help from my family or friends.	☐	☐	☐	☐
I felt depressed.	☐	☐	☐	☐
I thought my life had been a failure.	☐	☐	☐	☐
I felt fearful.	☐	☐	☐	☐
My sleep was restless.	☐	☐	☐	☐
I felt lonely.	☐	☐	☐	☐
I had crying spells.	☐	☐	☐	☐
I felt sad.	☐	☐	☐	☐

Q1.15: How often do you have a drink containing alcohol?

Please choose the appropriate response for each item:

Never	Monthly	2 to 4 times a month	2 to 3 times a week	4 or more times a week
☐	☐	☐	☐	☐

Q1.16: How many drinks containing alcohol do you have on a typical day when you are drinking?

Please choose the appropriate response for each item:

1 or 2	3 or 4	5 or 6	7 or 8 or 9	10 or more
☐	☐	☐	☐	☐

Q1.17: How often do you have six or more drinks on one occasion?

Please choose the appropriate response for each item:

Never	Less than monthly	Monthly	Weekly	Daily or almost daily
☐	☐	☐	☐	☐

Q1.18: Have you used drugs other than those required for medical reasons?

Please choose the appropriate response for each item:

Never	On Rare Occasions	Sometimes	Often	Very Frequently
☐	☐	☐	☐	☐

Q1.19: How often do you use drugs and alcohol at the same time?

Please choose the appropriate response for each item:

Never	On Rare Occasions	Sometimes	Often	Very Frequently
☐	☐	☐	☐	☐

Q1.20: Do you use more than one drug (not including alcohol or tobacco) at a time?

Please choose the appropriate response for each item:

Never	On Rare Occasions	Sometimes	Often	Very Frequently
☐	☐	☐	☐	☐

Q1.21: How often do you use illicit drugs?

Please choose the appropriate response for each item:

Never	Monthly or less	2 to 4 times a month	2 to 3 times a week	4 or more times a week
☐	☐	☐	☐	☐

Q1.22:

a given month how many times do you have anal sex with men? (please insert approximate number)

Please write your answer here:

[   ]

Q1.23: In the past when I have had anal sex with a new male partner I have done so :

Please choose the appropriate response for each item:

	-2	-1	0	1	2	
Never with a condom	☐	☐	☐	☐	☐	Always with a condom

Q1.24: I _ intend to use a condom every time I have anal sex with a new male partner (please click appropriate sponse to complete the sentence) :

Please choose the appropriate response for each item:

Definitely do not -2	-1	0	1	Definitely do 2
☐	☐	☐	☐	☐

Q1.25: For anal sex I expect to use a condom with a new male partners everytime I have sex

Please choose the appropriate response for each item:

Definitely do not -2	-1	0	1	Definitely do 2

☐	☐	☐	☐	☐

Q1.26: I want to use a condom every time I have anal sex with a <u>new male partner</u>

<u>Please choose the appropriate response for each item:</u>

Definitely do not				Definitely do
-2	-1	0	1	2
☐	☐	☐	☐	☐

Q1.27-30: For me using a condom every time I have anal sex with a <u>new male partner </u>is;

<u>Please choose the appropriate response for each item:</u>

	1	2	3	4	5	
Foolish	☐	☐	☐	☐	☐	Wise
Harmful	☐	☐	☐	☐	☐	Beneficial
Bad	☐	☐	☐	☐	☐	Good
Undesirable	☐	☐	☐	☐	☐	Desirable

Q1.31: In the past when I have had anal sex with a <u>regular male partner</u> I have done so

<u>Please choose the appropriate response for each item:</u>

	-2	-1	0	1	2	
Never with a condom	☐	☐	☐	☐	☐	Always with a condom

Q1.32: I intend to use a condom every time I have anal sex with a <u>regular male partner</u> (please click appropriate response to complete the sentence)

<u>Please choose the appropriate response for each item:</u>

Definitely do not				Definitely do
-2	-1	0	1	2

☐	☐	☐	☐	☐

Q1.33:

or anal sex I expect to use a condom with <u>regular male partners</u> every time I have sex

<u>Please choose the appropriate response for each item:</u>

Definitely do not				Definitely do
-2	-1	0	1	2
☐	☐	☐	☐	☐

Q1.34:

want to use a condom with a <u>regular male partner</u> every time I have anal sex

<u>Please choose the appropriate response for each item:</u>

Definitely do not				Definitely do
-2	-1	0	1	2
☐	☐	☐	☐	☐

Q1.35-38: For me using a condom every time I have anal sex with a <u>regular male partner</u> is;

<u>Please choose the appropriate response for each item:</u>

	1	2	3	4	5	
Foolish	☐	☐	☐	☐	☐	Wise
Harmful	☐	☐	☐	☐	☐	Beneficial
Bad	☐	☐	☐	☐	☐	Good
Undesirable	☐	☐	☐	☐	☐	Desirable

Q1.39:

eople who are important to me want me to use a condom every time I have anal sex with a male partner

Please choose the appropriate response for each item:

	-2	-1	0	1	2	
Not true at all	☐	☐	☐	☐	☐	Very true

Q1.40-43:

Imagine you were at a venue (such as a bar gym sauna or party) where you would generally meet the kind of man you would like to have sex with. Both you and he are meeting for the first time and would like to have anal sex however neither of you have condoms. How likely is it that you would;

Please choose the appropriate response for each item:

	Very unlikely -2	-1	0	1	Very likely 2
Choose a less risky type of sexual activity such as oral sex or mutual masturbation	☐	☐	☐	☐	☐
Have anal sex but withdraw prior to ejaculation	☐	☐	☐	☐	☐
Have sex without using a condom	☐	☐	☐	☐	☐
Abstain from sex.	☐	☐	☐	☐	☐

Q1.44: How confident are you that you will be able to use a condom every time you have anal sex with a male partner?

Please choose the appropriate response for each item:

	-2	-1	0	1	2	
Not very confident	☐	☐	☐	☐	☐	Very confident

Q1.45: People who are important to me think I should use a condom every time I have anal sex with a male partner (please click the appropriate response to complete the sentence)

Please choose the appropriate response for each item:

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	-2	-1	0	1	2	
Not true at all	☐	☐	☐	☐	☐	Very true

Q1.46: I believe that I have the ability to use a condom every time I have anal sex with a male partner

Please choose the appropriate response for each item:

	-2	-1	0	1	2	
Not at all confident	☐	☐	☐	☐	☐	Very confident

Q1.47: To what extent do you see yourself as being capable of using a condom every time you have anal sex with male partner?

Please choose the appropriate response for each item:

	-2	-1	0	1	2	
Not at all capable	☐	☐	☐	☐	☐	Very capable

Q1.48-51: Imagine you were with a man whom you have had regular sexual contact when in a familiar situation. You both wish to have anal sex again and neither of you have condoms available. How likely is it that you would;

Please choose the appropriate response for each item:

	Very unlikely -2	-1	0	1	Very likely 2
Choose a less risky type of sexual activity such as oral sex or mutual masturbation	☐	☐	☐	☐	☐
Have anal sex but withdraw prior to ejaculation	☐	☐	☐	☐	☐
Have sex without using a condom	☐	☐	☐	☐	☐
Abstain from sex completely	☐	☐	☐	☐	☐

Section 2

Prototypes:

When each of us thinks of the typical person who belongs to a particular group or who performs a specific behaviour, we each develop what is called a 'prototype'. These prototypes are the collection of attributes we think of when we imagine this typical person (your personal 'image' of that type of person). These attributes can be positive, negative or both. For example a typical prototype of a 'footballer' may include attributes such as fit, attractive, and team oriented. Another person however may consider a typical footballer egotistical, unintelligent, and unattractive. Neither of these are wrong and simply demonstrate the variety of prototypes available.

The next few questions will ask you to imagine a specific type of person. Please answer as closely as you can to your personal prototype of that person.

Remember that it is your personal prototype we are looking for.

Q2.1-7:

Imagine clearly your perception of the type of person who will <u>under no circumstances</u> engage in anal intercourse without a condom. Then indicate where you believe they fall on the following items from ;'not at all' (-2) to 'very' (2)

Please choose the appropriate response for each item:

	Not at all -2	-1	0	1	Very 2
Self confident	☐	☐	☐	☐	☐
Independent	☐	☐	☐	☐	☐
Immature	☐	☐	☐	☐	☐
Careless	☐	☐	☐	☐	☐
Attractive	☐	☐	☐	☐	☐
Dull	☐	☐	☐	☐	☐

	Not at all -2	-1	0	1	Very 2
Smart	☐	☐	☐	☐	☐

Q2.8-14: Now imagine clearly the type of person who would <u>always have anal sex without</u> a condom and score them on the following items from 'not at all' (-2) to 'very' (2)

<u>Please choose the appropriate response for each item:</u>

	Not at all -2	-1	0	1	Very 2
Self confident	☐	☐	☐	☐	☐
Independent	☐	☐	☐	☐	☐
Immature	☐	☐	☐	☐	☐
Careless	☐	☐	☐	☐	☐
Attractive	☐	☐	☐	☐	☐
Dull	☐	☐	☐	☐	☐
Smart	☐	☐	☐	☐	☐

Q2.15-21: Now imagine a person who frequently meets new sexual partners at a sex on site venue (such as a sauna, adult bookstore, public toilet, or cruising area) and score them along the following items ;'not at all' (-2) to 'very' (2)

<u>Please choose the appropriate response for each item:</u>

	Not at all -2	-1	0	1	Very 2
Self confident	☐	☐	☐	☐	☐
Independent	☐	☐	☐	☐	☐
Immature	☐	☐	☐	☐	☐
Careless	☐	☐	☐	☐	☐

	Not at all -2	-1	0	1	Very 2
Attractive	☐	☐	☐	☐	☐
Dull	☐	☐	☐	☐	☐
Smart	☐	☐	☐	☐	☐

Q2.22-28: Now imagine a person who almost exclusively meets sexual partners at social events, restaurants and cafes, and score them along the following items from 'not at all' (-2) to 'very' (2)

Please choose the appropriate response for each item:

	Not at all -2	-1	0	1	Very 2
Self confident	☐	☐	☐	☐	☐
Independent	☐	☐	☐	☐	☐
Immature	☐	☐	☐	☐	☐
Careless	☐	☐	☐	☐	☐
Attractive	☐	☐	☐	☐	☐
Dull	☐	☐	☐	☐	☐
Smart	☐	☐	☐	☐	☐

Q2.29: I believe that condoms reduce sexual sensation

Please choose the appropriate response for each item:

	-2	-1	0	1	2	
Strongly disagree	☐	☐	☐	☐	☐	Strongly agree

Q2.30: I believe that condoms can cause erectile problems

Please choose the appropriate response for each item:

-2	-1	0	1	2

Strongly disagree ☐   ☐   ☐   ☐   ☐   Strongly agree

Q2.31: How often have condoms interfered with your ability to obtain or maintain an erection?

Please choose the appropriate response for each item:

	-2	-1	0	1	2	
Never	☐	☐	☐	☐	☐	Almost always/always

Section 3

SEXUAL BEHAVIOUR WITHOUT CONDOM USE QUESTIONS

Q3.0: Have you had anal sex with another male without a condom?

Please choose *only one* of the following:
☐ Yes
☐ No

Only answer this question if you answered 'Yes' to question 'Q3.0 ']

Q3.1: In a given month I would have anal sex with a male without using a condom X many times (please enter an approximate number)

Please write your answer here:

[   ]

Only answer this question if you answered 'Yes' to question 'Q3.0 ']

Q3.2-4: Think back to when you have had sex with a male without a condom in the past and the people you have had sex with. Keeping these people in mind one average where they:

Please choose the appropriate response for each item:

	-2	-1	0	1	2	
Effeminate	☐	☐	☐	☐	☐	Masculine
Unattractive	☐	☐	☐	☐	☐	Attractive

Physically unfit	☐	☐	☐	☐	☐	Physically fit

Q3.5: Keeping instances where you have had anal sex with a man without a condom in mind how often has <u>the other person</u> you have had sex with negotiated to not use a condom?

Please choose the appropriate response for each item:

	-2	-1	0	1	2	
Never	☐	☐	☐	☐	☐	Always

Q3.6: Keeping instances where you have had anal sex with a man without a condom in mind how often have <u>you negotiated</u> to not use a condom?

Please choose the appropriate response for each item:

	-2	-1	0	1	2	
Never	☐	☐	☐	☐	☐	Always

Q3.7-10: Thinking back to when you have had <u>unprotected anal sex</u> in the past, how often would you have met your partner <u>on that occasion</u> at

Please choose the appropriate response for each item:

	Never -2	-1	0	1	Always 2
A sex on site venue such as sauna adult bookstore or public toilet/cruising area	☐	☐	☐	☐	☐
A bar or nightclub	☐	☐	☐	☐	☐
A social event café or restaurant	☐	☐	☐	☐	☐
On the internet	☐	☐	☐	☐	☐

Q3.11-12: Thinking back to instances where you have had anal intercourse without a condom in the past, how often have you done so after use of a condom has been followed by:

Please choose the appropriate response for each item:

	Never -2	-1	0	1	Always 2
Loss of erection	☐	☐	☐	☐	☐
An inability to reach climax	☐	☐	☐	☐	☐

Q3.13: Keeping in mind past instances where you have had anal intercourse without a condom, how often would you have done so immediately after taking drugs (other than alcohol) or whilst taking drugs?

Please choose the appropriate response for each item:

Never -2	-1	0	1	Always 2
☐	☐	☐	☐	☐

Q3.14: Keeping in mind past instances where you have had anal intercourse without a condom, how often would you have done so immediately after consuming alcohol or whilst consuming alcohol?

Please choose the appropriate response for each item:

Never -2	-1	0	1	Always 2
☐	☐	☐	☐	☐

Q3.15: Keeping in mind past instances where you have had anal intercourse without a condom how often would

ou have done so whilst feeling depressed?

Please choose the appropriate response for each item:

	Never				Always
	-2	-1	0	1	2
	☐	☐	☐	☐	☐

[Only answer this question if you answered 'Yes' to question 'Q3.0 ']

Q3.16: Keeping in mind past instances where you have had anal intercourse without a condom, how often would this have occurred whilst you were experiencing significant stressful events (i.e. after a break-up or significant work issue)?

Please choose the appropriate response for each item:

	Never				Always
	-2	-1	0	1	2
	☐	☐	☐	☐	☐

Submit Your Survey.
Thank you for completing this survey..