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SOCIAL ASSOCIATION MEMBERSHIP AND RISKY BEHAVIOURS AMONG ADOLESCENTS IN SOUTH AFRICA

A research report submitted to the Faculty of Humanities, School of Social Sciences, University of the Witwatersrand, in partial fulfillment of the requirements for the Degree of Master of Arts in the field of Demography and Population Studies



BY

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March 2016

Declaration

I, Takalani Muloiwa, declare that this research report titled

'Social association membership and risky behaviours among adolescents in South Africa'

is my own original work. It is being submitted in partial fulfillment for the degree Master of Arts in Demography and Population Studies at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any other degree or examination in any other university.

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Abstract:

Background: Risky behaviours are notably the most important factors contributing to negative health outcomes among adolescents. A number of diseases and deaths have been linked to risky and harmful behaviours. Research has shown that being involved in one risky behaviour increases the likelihood of involvement in additional risky behaviours. Adolescents have been identified at the centre of sustainable development, particularly in achieving goals related to bringing poverty to an end, promoting health and well-being, attaining equitable and quality primary and secondary education as well as achieving inclusive and sustainable economic growth.

Objectives: The objective of this study was firstly to examine the levels of social association membership and risky behaviour among adolescents. Secondly, to identify the determinants of risky behaviour among South African adolescents and lastly, to examine the relationship between social association membership and risky behaviour among adolescents.

Methods: Data were drawn from the South African Youth Life Style Survey of 2008. A sample of 3335 adolescents aged 12 to 19 years was analysed. Four binary and one multinomial logistic regression analyses were conducted. The four binary dependent variables were for risky sexual behaviours, risky substance use behaviours, other risky behaviours and engaging in at least one type of behaviour. For each of these binary dependent variables the response category was yes or no. The dependent variable for the multinomial logistic regression model was any adolescent risky behaviour which was categorised as; no behaviour, any one category of behaviour, any two categories of behaviour and all three categories of behaviour. The key independent variables were firstly an index variable generated by merging all the different social associations into one variable that had the response yes or no to being a member of any social association. There were also five key independent variables that were the individual social associations namely; sports, religious groups, choir, drama and other associations.

Results: The two most common social associations that adolescents engaged in were sports groups (515 per 1000 adolescents) and religious groups (342 per 1000 adolescents). Risky

behaviours with the highest number adolescents engaging in them were driving without a seatbelt (32%), consuming alcohol (32%), being a passenger in a car driven by someone under the influence of alcohol (28%), tobacco use (21%) and lack of condom use (9%). Adolescents who were not members of social associations were found to have decreased the risk of engaging in one, two and all three categories of risky behaviours. Not being a member of religious groups increased the risk of engaging in one, two and all three categories of risky behaviour. Adolescents who were not members of sports groups were found to have lower risks of engaging in one, two and all three categories of risky behaviour, as well as decreased odds of engaging in at least one type of risky behaviour.

Conclusion: The study found that there was a statistically significant relationship between social association membership and risky behaviours among adolescents in South Africa. More particularly, religious associations were found to be protective factors to risky behaviours and sports, drama and other associations were found to be platforms that could potentially increase the likelihood of risky behaviour among adolescents.

Keywords: *Adolescence, adolescent, risky behaviour, social associations and South Africa*

1. Chapter 1

1.1. Introduction

This chapter presents the background of this study, emphasizing the problem of adolescent risky behaviours and their determinants. Furthermore, the chapter goes on to identify the objectives of the study as well as highlights the justification for the study.

1.2. Background

The United Nations defines adolescents as individuals who are within the age group of 10 to 19 (Unicef, 2011). The adolescent phase is a transition period from childhood to adulthood that is characterized by pubertal maturation and independence from the parents (Casey et al., 2010). Adolescents comprise over 20% of the world's population, with more than 85% of them residing in developing countries (Blum and Nelson-Mmari, 2004). In 2008, the world was made up of 1.2 billion adolescents (Unicef, 2011). In South Africa in 2015, 18.7% of the population was made up of adolescents (Statistics South Africa, 2015).

The role of adolescents in South Africa is diverse. The South African Survey on the Activities of Young People (2010) reported that 11 million 7 to 17 year olds were involved in economic activities, 24.6% were attending school, whilst 35% were not attending school at all (Statistics South Africa, 2011). Adolescents play an imperative role in care giving in households that are child headed. In 2006, there were 0.67% children living in households that were headed by children in South Africa (Meintjes et al., 2009).

Risky behaviours, are behaviours that are instigated during the adolescence phase and they can result in negative health outcomes, therefore decreasing healthy transition of the adolescent into adulthood (Irwin Jr., 1993; McGlinchey and Harvey, 2014; Milkman and Wanberg, 2012). Risky behaviours include activities such as early sexual debut, lack of condom use, drug use, tobacco use, alcohol use and driving under the influence of alcohol (Amoateng et al., 2014; Alan J Flisher et al., 2006; Harrison et al., 2005; MacPhail and Campbell, 2001; Mashita et al., 2011; Onya et al., 2012). In South Africa, risky behaviours have been reported highly prevalent with an alarming 78.7% of adolescents aged 14 to 18 years old having used substances, 49.1% of having used alcohol, 30.5% having used

cigarettes, 41.1% having had sexual intercourse and 16.1% having been impregnated or impregnated another individual (Wegner et al., 2008). However, these kinds of behaviours are not the only behaviours that adolescents engage in.

The non-risky behaviours, social associations, are increasingly becoming very common among adolescents. Social associations are the extracurricular activities that adolescents are involved in and they have been used as preventative strategies to reducing adolescent risky behaviours globally (Carmichael, 2008; Le, 2013; Tibbits et al., 2009). Social association memberships include activities such as participating in a youth group or club, sports group or religious youth group. Research has shown that adolescents who were actively involved in religious groups and activities were less likely to be involved in risky sexual behaviours and behaviours related to the utilization of harmful substances like tobacco, marijuana and alcohol use (Sinha et al., 2007; Steinman and Zimmerman, 2004; Tibbits et al., 2009). Additional research has indicated that being involved in sports teams prevents adolescents from engaging in crime and violent behaviours (Carmichael, 2008). Important to note on social associations is that previous research has shown that adolescents gain social capital from them and this social capital is beneficial as it is expected to result in positive outcomes among adolescents (Lindström et al., 2001).

Educators in South African schools have reported that participating in school-based social associations improves learner's confidence, instills in them a positive attitude towards schoolwork, makes them disciplined and also reduces their involvement in various forms of risky behaviour especially those related to the use of substances (Kariyana et al., 2012). In developed countries extracurricular activities play a significant part of school life (Le, 2013). In South Africa, many adolescents have reported experiencing high levels of boredom during the week and during weekends (Fourie et al., 2011; Miller et al., 2014). Therefore, it is essential to examine all possible determinants of risky behaviours including the relationship between non-risky behaviours such as social associations and risky behaviours.

1.3. Problem Statement

Risky behaviour has been identified as a crucial determinant of negative health outcomes. Behaviours that are learnt and adopted during adolescence are known to continue into

adulthood and additionally some of these behaviours may prevent a successful and healthy transition into adulthood (Irwin Jr., 1993; McGlinchey and Harvey, 2014; Milkman and Wanberg, 2012). An estimated 70% of premature deaths in adults have been linked to behaviours that were instigated during the adolescence period (Fisher and Gevers, 2010). Many communicable and non-communicable diseases, as well as injury related deaths can be avoided with the adoption of non-harmful and non-risky behaviours. One of the most common examples is that of the use of condoms during sexual intercourse to prevent the contraction and spread of HIV. Numerous South African studies have reported a lack of use and inconsistent use of condoms among adolescents (Tlllotson and Maharaj, 2001; Zwane et al., 2004; Sayles et al., 2006). Condom use in South Africa is low with 15% of males and 18% of females reporting occasional or consistent use of condoms in 2005 and in 2011 the overall percentage number of adolescents that used condoms was 33% (Maharaj and Cleland, 2005; Reddy et al., 2013).

Drinking and driving is a risky behaviour that can lead to potentially life threatening accidents and severe injuries (Schneider et al., 2007; Seedat et al., 2009). It has been reported that there is more than five times the risk of fatal road accidents among adolescent drivers compared to drivers above the age of 30 (World Health Organization, 2007). South Africa has reported the highest number of road transport accidents in the world, and in the year 2000 there were 43.0 deaths per 100 000 people which is more than double the world rate of 21.6 deaths per 100 000 people (Matzopoulos et al., 2004). Studies pertaining to the long- term effects of behaviours adopted during adolescence have been done. An example of this, is the early adoption of cigarette smoking and later contraction of respiratory infections and lung cancer in adult ages (Strachan & Cook 1997; Thun et al. 1997).

Other risk–taking behaviours of adolescents have been well researched. Some of these behaviours include illicit drug use, having multiple sexual partners and engaging in violent acts with peers (Johnston, 2010; Swart et al., 2002; Varga, 2003). This research will contribute to this growing area of research by studying the relationship between social associations and risky behaviours which is understudied in the larger context of South Africa.

1.4. Justification

The youth bulge in South Africa has the potential to become a demographic dividend which presents a window of opportunity for rapid economic growth (Pool, 2007). This means that the overall economic development of the region in the coming two decades will be driven by the young economically active population (UNESCO, 2013). Therefore, it is crucial for South Africa to invest in adolescents to help consolidate the historic global gains achieved in early and middle childhood. Investing in adolescents can help contest inequity, gender discrimination and poverty (Unicef, 2011b).

The relevance of determining the relationship between social association membership and risky behaviours among adolescents is two-fold. Firstly, risky behaviours make a significant contribution to the morbidity and mortality of adolescents. For example, lack of condom use can lead to the contraction of HIV and STI's, underage driving can lead to injury and mortality and alcohol abuse can also lead to injuries (Idele et al., 2014; Muula, 2008; Peltzer and Ramlagan, 2009; Seggie, 2012). Secondly, it will provide a better understanding of how all behaviours relate to one another. Social association memberships in developed countries are highly common and accessible and they involve being engaged in behaviours that increase the likelihood of more positive outcomes such as the development of self-esteem, leadership qualities and health improvement (Le, 2013). Very few studies have tested this relationship on a South African national context (Miller et al., 2014; Sharp et al., 2011; Tibbits et al., 2009). Understanding this relationship will help inform South African Youth policies and programmes mandated by policies like the Adolescent Youth Health Policy 2012 and the National Youth Policy 2015 to 2020. Both of these policies seek to improve health outcomes and the livelihoods of adolescents so that they can contribute to development of the country (Department of Health, 2012; The Presidency, 2015).

The area of adolescent risky behaviours in South Africa is well researched (Burrows and Laflamme, 2008; MacPhail and Campbell, 2001; Onya et al., 2012; Shilubane et al., 2013). However, previous research on risky behaviours in South Africa has been very small scale i.e. at the level of a city or the province. It has looked at smaller intervals of adolescent age groups, for example only ages 12 to 14 or 15 to 19. This study however, will make use of a national survey surveying adolescents across the nine provinces of South Africa of age group

12 to 19, a broader age range. Thus, the research will contribute to a growing body of literature and it will bridge a knowledge gap by studying the relationship between social associations and risky behaviours that is an understudied area in South Africa.

1.5. Research Question

- What is the relationship between social association membership and risky behaviours among adolescents in South Africa?

1.6. Research Objectives:

General Objective:

- To examine the relationship between social association membership and risky behaviours among adolescents in South Africa.

Specific Objectives:

1. To examine the levels of social association memberships and risky behaviours among adolescents in South Africa.
2. To identify the demographic and socioeconomic determinants of risky behaviours among adolescents in South Africa.
3. To test the relationship between social association memberships and risky behaviours among adolescents in South Africa.

1.7. Definition of terms:

- *Adolescence:* the transitional period from childhood to adulthood that is characterized by pubertal maturation and independence from the parents (Casey et al., 2010).
- *Adolescent*: an individual who is within the age group 10 and 19 (Unicef, 2011a).
- *Risky Behaviour*: a behaviour for which there are consequences and these have the potential for negative health outcomes (Irwin Jr., 1993).
- *Social Association:* an extracurricular activity that an adolescent may be involved in outside the classroom, for example a youth cultural group or a sports group (Le, 2013).

2. Chapter 2: Literature Review

2.1. Introduction

This chapter presents a review of previous literature on adolescent risky behaviours around the world and in South Africa. The review is divided into four sections which focus on sexual behaviours, substance use, other risky behaviours and social association membership. The chapter also goes on to discuss the theoretical and conceptual framework that underpin the study and finally the hypothesis that the study tests.

2.2. Sexual Behaviours

The second leading cause of death among adolescents between age 15 and 19 worldwide is HIV/AIDS. Approximately 12 million young people have been infected with HIV/AIDS in the world and 75% of these young people reside in sub-Sahara Africa (Blum and Nelson-Mmari, 2004). HIV infection among adolescents is driven largely by the risky behaviours that they engage in which make them highly vulnerable to contracting the disease. A quantitative study among adolescents in the North West Province in South Africa identified the individual and structural factors which predict adolescent risky sexual behaviours. Predictors of risky sexual behaviours among adolescents included the following; substance use like alcohol, tobacco and drugs, having a boyfriend or a girlfriend, being male and having strong ties with peers (Aarø et al., 2014). Another quantitative study in the same province examined the contextual factors of risk taking behaviours among adolescents who were Black (Amoateng et al., 2014). Similar to the Aarø (2014) study, adolescent risky sexual behaviours were strongly associated to the use of substances, peer influences and being in a relationship (Amoateng et al., 2014). Both these studies also found that when adolescents had strong religiosity they were unlikely to engage in risky sexual behaviours (Aarø et al., 2014; Amoateng et al., 2014).

A study conducted in the Kwazulu-Natal province in South Africa reported that young men between age 15 and 24 who engaged in early sexual debut were more likely to have multiple sexual partners. Early sexual debut in this study was associated with factors the following factors; peer pressure, assertion of masculinity, male adolescents having relations with older women and sexual abuse (Harrison et al., 2005). A qualitative study in a South

African township found that both male and female adolescents reported using condoms as generally unnecessary when they were in "steady" relationships. The study also found that adolescents believed that they should be using condoms only when they are having sexual intercourse with casual partners. Female adolescents in this study reported that for a steady partner to insist on the use of a condom during sexual intercourse was an indication of lack of respect and trust which could destroy the adolescents reputation within the peer group (MacPhail and Campbell, 2001). Additionally, the adults' views of sexual behaviour were found to have a significant impact on the adolescent's choice to use condoms. Adolescents who were not able to speak freely to their guardians regarding sexual intercourse and condom use were more likely to not use condoms during sexual intercourse. Parents viewed adolescents' sexual behaviour as dangerous and irresponsible. Adolescents noted that they were at risk of physical violence from adults if adults found out that they were sexually active (MacPhail and Campbell, 2001).

A national study conducted in South Africa reported that the perceptions that adolescents had towards condoms were important for the self-efficacy of condoms (Sayles et al., 2006). Low self-efficacy was associated with the belief that condoms were a sign of distrust. The study also found that when both male and female adolescents had goals that they wanted to achieve in life, they had high self-efficacy of condoms. Furthermore, the study revealed that male and female adolescents were aware of how they can avoid HIV infection but the study further found that less than a third of female adolescents reported consistent condom use. Male adolescents in this study were seen as having a right to make a decision on the use of condoms without negotiating with females whereas females who wanted to use condoms had to negotiate with their male counterparts (Sayles et al., 2006). Similar to the study in Kwazulu-Natal (Harrison et al., 2005), condoms were perceived as a sign of distrust. These studies reveal how sexual intercourse is a gendered process which gives males the right to exercise their masculinity through the choice to use or not to use condoms without feeling the need to negotiate with their partners. The studies were limited in that the study settings were at provincial level, focussing on one province as well as at the level of the town.

2.3. Substance Use

Substance use includes the utilization of substances such as cannabis, cocaine, opium, heroin, amphetamine stimulants, ecstasy, alcohol and inhalants (Gruskin et al., 2001). Atav and Spencer (2002) examined the differences in health risky behaviours among adolescents attending rural, suburban and urban schools in New York in the United States. Their findings were that there is a higher usage of tobacco among rural students, followed by suburban and then urban adolescents. Adolescents from the rural areas were also found to make frequent use of alcohol and other drugs. The use of drugs and alcohol were not the only substances related to risky behaviours that research has identified. Even more dangerous is drug trading among adolescents. A national longitudinal study in the United States illustrated that there is an increase in adolescents selling drugs by age. This behaviour was linked to the "nothing to lose" attitude (Harris et al., 2002).

In South Africa the most popular drugs of choice among young people has been found to be ecstasy and methamphetamine (Peltzer et al., 2010). One of the increasing concerns that Peltzer et al (2010) recognized was the decreasing age of initiation for the use of drugs amongst young people. Substance use and abuse has been identified as an emerging critical issue in South Africa, particularly because prevalence rates for substance use are more than double the world average (Gopal et al., n.d.). Amoateng et al (2006) conducted a study in Cape Town and they found that the association between alcohol and tobacco use was stronger for Coloured adolescents than Black and White adolescents. Furthermore, amongst the Black adolescents, the males were more likely to make use of substances than the females were (Amoateng et al., 2006).

In rural South Africa, cigarette smoking was found to increase with age from 4.9% at age 11 to 17.1% at age 18 (Mashita et al., 2011). Tobacco smoking was a behaviour that was adopted by the males in the study whereas the females opted for the use of snuff. Smoking in rural areas was reported to be initiated at the age of 11 and 12 years and it was associated with having adult relatives who smoke in the household (Mashita et al., 2011). Onya et al (2012) conducted a similar study in rural South Africa and found that 22% of adolescents had consumed alcohol and 10% of adolescents had used tobacco cigarettes in their lifetime. Alcohol use was commonly associated with male adolescents and religious

affiliations were found to increase the likelihood of using alcohol or drugs (Onya et al., 2012). In Cape Town, South Africa, adolescent males were more likely to smoke cigarettes than females. The likelihood of cigarette smoking was also found to be high amongst the adolescent population groups Coloured and then Black (Brook et al., 2005). A study conducted in a school in the Gauteng province in South Africa reported that 51.4% of adolescents had consumed alcohol in their lifetime as well as exhibited binge-drinking patterns. The mean age of initiation of substances ranged between age 14 and 15. Alcohol was reported to be the substance that had the lowest mean age of initiation and it was followed by cigarette smoking (Moodley et al., 2012). The use of substances is a crucial risky behaviour because it increases the likelihood of engaging in additional risky behaviours such as lack of condom use during sexual intercourse, attempting suicide and driving under the influence of alcohol.

2.4. Other behaviours

In the United States, male adolescents were found to be more likely to carry weapons to school than the female adolescents (Muula et al., 2008). Carrying weapons to school was strongly associated with adolescents who had suffered forced sexual behaviours. The study reported that Black students were less likely to carry weapons to school compared to White adolescents (Muula et al., 2008). Adolescents older than 15 years were more likely to be in possession of weapons on school grounds. In addition, adolescents who were suicidal and depressed were associated with carrying weapons to school. Another study in the United States found that rural adolescents were at a higher risk of carrying a knife, a gun, a club or other weapons to school (Atav and Spencer, 2002). A study on gang-related activities in South African schools revealed that knives, matches and various sharp objects had been confiscated from students at school. However, students were reported to carry weapons as a means of protecting themselves from being mugged enroute to school and not to use them whilst at school (Mncube and Steinmann, 2014). In Queenstown in South Africa, 13.9% of adolescent males who were in grade 11 were found to have carried a dangerous weapons to school (Alan J Flisher et al., 2006).

Road transport accidents have been found to be one of the leading causes of death among adolescents globally (Odero et al., 1997). In Australia, a large proportion of transport

accidents that occurred during 1996 and 2000 involved drivers who were below the age of 16 (Lam, 2003). The study revealed that 47% of the adolescents had a blood alcohol concentration that was above the legal limit. More than half (79.5%) of the drivers were males. Furthermore, transport accidents were strongly associated with driving on a Friday and during weekends (Lam, 2003). Flisher et al (2006) conducted a study on injury related behaviours in six communities in various parts of South Africa. The study showed that 52,8% of adolescents in grade 11 in Cape Town had travelled in the front seat of a car without a seatbelt and 27% of these adolescents had been passengers in a car with a driver that was driven under the influence of alcohol. The study also found that injury related behaviours that were a result of transport accidents were lower in rural settings as opposed to urban areas (Flisher et al., 2006). Adolescent males were found to be more likely to engage in all the above mentioned injury related behaviours except attempted suicides which were more inclined to the female adolescents (Flisher et al., 2006).

Suicidal behaviour has been identified as a major public health issue among young people in South Africa. Approximately 9.5% of non-natural deaths amongst adolescents have been a result of suicide behaviour. Suicide behaviours have been found to be highly prevalent during the weekends and towards the end of the school year (Schlebusch, 2012). In Durban, 33.8% of Grade 8 adolescents reported suicidal behaviours and these behaviours included thoughts, plans or attempts of suicide. Adolescent suicidal behaviours were linked to high levels of perceived stress, depression, hopelessness and anger (Vawda, 2014).

2.5. Social Association Memberships

Social associations are activities that go beyond the classroom environment, for example, church youth groups, sporting activities and other additional cultural activities. Research has indicated that when adolescents were involved in religious activities they were less likely to engage in risky behaviours. Steinman and Zimmerman (2004) conducted a study among Africa-American youth in the United States of America and found that the more religious activity that adolescents engaged in the less involved they were in sexual intercourse, alcohol, cigarette and marijuana use. The more religious activity in the ninth grade the less likely the adolescent was to use marijuana throughout high school. A related study in the United States demonstrated that increased religious behaviours were generally

good predictors of decreased youth risk behaviours; smoking, alcohol use, truancy, sexual activity, marijuana use, and depression (Sinha et al., 2007). Carmichael (2008) also found in the United States of America, that the promotion of sport activities prevented drug use and crime related activity. The Missouri midnight basketball programs were found to reduce crime rate among African American youth.

A study surveying educators in South Africa reported that when adolescent learners were involved in social associations at school they gained a more positive attitude towards school and were less likely to engage in risky behaviours such as drug and alcohol use (Kariyana et al., 2012). The study also found that many educators believed that it was necessary to make participating in social associations mandatory at school (Kariyana et al., 2012).

A study in Potchefstroom in South Africa reported that there is great need for leisure activities as some of the adolescents in the area were found to have experienced boredom (Fourie et al., 2011). These findings were similar to those of a South African study conducted in Cape Town which revealed that one tenth of adolescents reported high levels of boredom at the end of ninth grade (Miller et al., 2014). This study also demonstrated that males who experienced high levels of boredom in leisure were more likely to report using alcohol at time of last sexual encounter and a sexual aggressive attitude. These findings resonate with findings from another Cape Town study conducted by Sharp et al (2011) that a one unit increase in boredom overtime increased the likelihood of using marijuana by 36%. Furthermore, the study found that when adolescents reported boredom during in the beginning of the eighth grade were significantly more likely to report on the use of substances over time (Sharp et al., 2011). Similarly, adolescents in Cape Town who participated in leisure activities were found to be less likely to make use of substances (Tibbits et al., 2009).

Previous studies have indicated that there are various individual level and contextual factors that influence risky behaviours among adolescents. A few studies have identified an association between certain non-risky behaviours such as religiosity as decreasing likelihood of engaging in risky behaviours in small communities and provinces. However, there is a need to examine the relationship on a national scale in South Africa while taking into

consideration the rural and urban divide in access to social associations which literature has identified.

2.6. Theoretical Framework

The theoretical underpinning of this study was the Social Control Theory which was developed by Travis Hirschi in 1969 to explain the causes of delinquency among young people. According to this theory, conformity to behaviour is achieved through socialization and bond between the individual and the four major components of society; attachment, commitment, involvement and belief (Wiatrowski et al., 1981). The stronger the social bond with each element the less likely delinquent behaviour will occur. Attachment is the ties that the adolescent has with other individuals in the family environment. Commitment relates to the individuals' aspirations in life. Involvement is the time that the individual spends doing conventional activities that lead toward socially valued success. Belief refers to the acceptance of moral validity of the social value system (Wiatrowski et al., 1981).

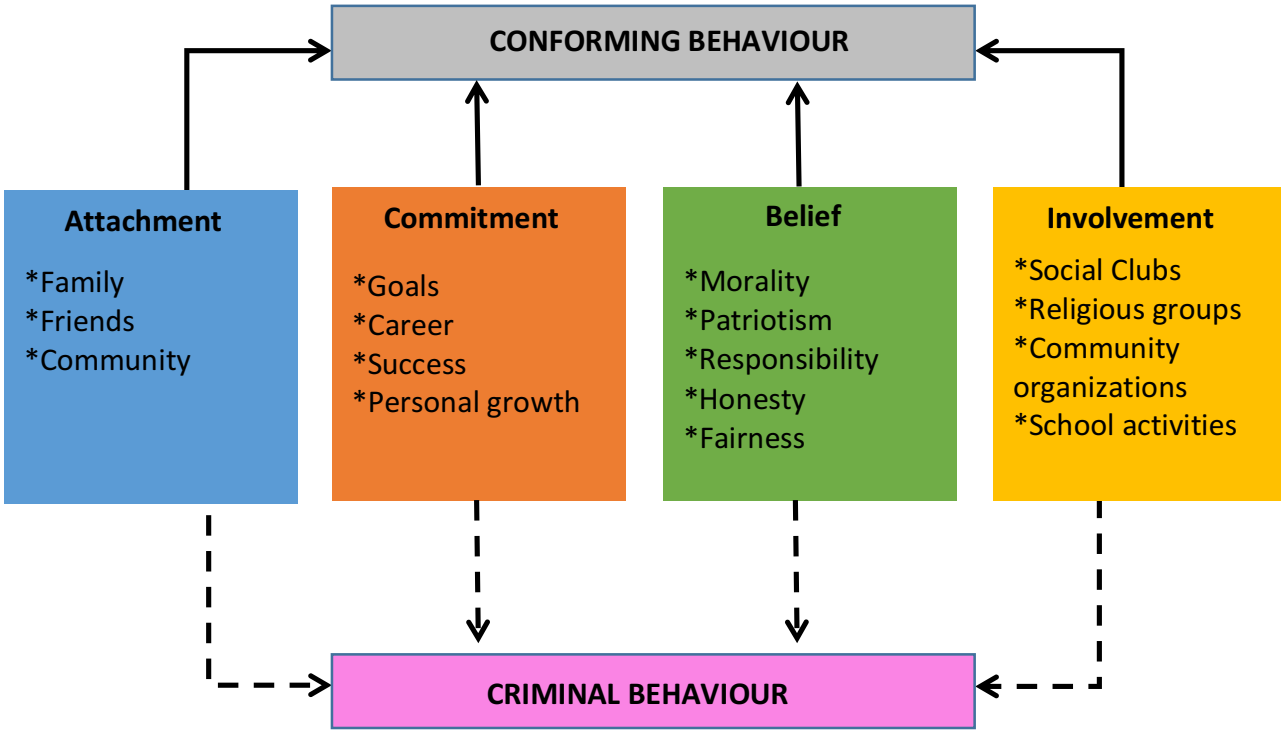
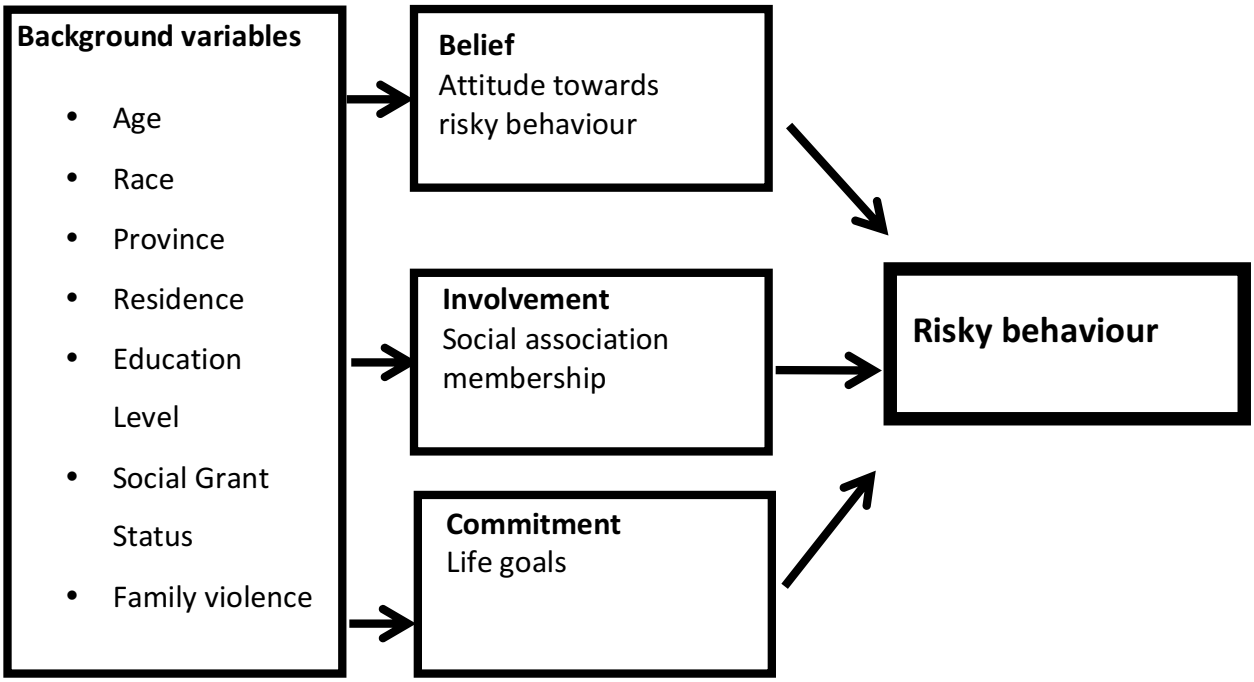


Figure 2.1: Theory of Social Control theoretical framework

2.7. Conceptual Framework



Adapted from Hirschi (1969) in Wiatrowski et al 1981

Figure 2.2: Conceptual framework adapted from the Theory of Social Control

The conceptual framework was adapted from the Social Control theory and it illustrates how background variables can influence attitudes towards risky behaviour, social association membership and life goals to influence the outcome risky behaviour. The conceptual framework included only three components of Travis Hirschi (1969) model, the belief, involvement and commitment environments. The belief environment is the attitude towards the behaviour and it determines whether or not they engage in risky behaviour because of how they feel about the risky behaviour. The involvement environment is the social association membership and it is a platform that either encourages or discourages risky behaviours through the social capital gained from it. The commitment environment is the adolescents' life goals and having goals that they want to achieve is expected to discourage them from engaging in risky behaviour. The fourth component of the theoretical framework were not included because they were not a core part of the research and the

data set that was used in the research would not have sufficient variables to test the component.

2.8. Hypothesis

- $H_{0:}$ Adolescent social association memberships do not increase the probability of engaging in risky behaviours in South Africa.
- H_1: Adolescent social association memberships increase the probability of engaging in risky behaviours in South Africa.

3. Chapter 3: Methodology

3.1. Introduction

The methodology chapter presents an overview of the study area, design, sample size, study population, variables used and ethics management. Thee chapter additionally gives an outline of the data management and data analysis as per the different objectives of the study.

3.2. Study area

South Africa is located on the Southern tip of the African continent. It is surrounded by the following neighboring countries; Botswana, Mozambique, Zimbabwe and Namibia. The country land-locks two countries; Swaziland and Lesotho. In 2015, the population of South Africa was estimated at 54.96 million people across the nine provinces of the country (Statistics South Africa, 2015).

3.3. Data source

Data for the study was drawn from the South African Youth Life Style Survey collected by the Centre for Justice and Crime Prevention in Cape Town. The survey sample was designed using the Statistics South Africa sample frame in order to make it reflective of the population of South Africa (CJCP, 2009). A total of 550 enumeration areas were randomly selected and eight households were selected in each enumeration area. Using the marginal total from the South African 2001 Census, the data was weighted by province, race and gender (CJCP, 2009).

3.3.1. Survey Design

The South African Youth Life Style Survey 2008 is a cross sectional survey. The survey questionnaire collected information on adolescent youths' demographics, home environment, experiences at school, exposure to violence, access to information, social activities, access to drugs and weapons, personal experiences of crime and views of the future (CJCP, 2009).

3.3.2. Sample Size

The sample comprised of 4391 adolescent youth aged 12 to 22 years. There were 2472 males and 1919 females. Adolescent youth residing in rural areas constituted 45.1% of the population, 43.5% was from urban areas and 11.4% was from metropolitan cities (CJCP, 2009). The overall response rate was 94% which was determined by dividing the total responses by the total number of individuals in the sample and multiplying by 100.

3.3.3. Study population

The study population is 3335 South African adolescents aged 12 to 19 years across all the nine provinces of South Africa. Male adolescents made up 56% of the population and females made up 44% of the study population. Youth aged 20 to 22 years were deliberately excluded from the study population because they are outside the adolescent's age group of age 10 to 19 years.

3.4. Variables

3.4.1. Dependent Variable

The dependent variable was different for each different logistic regression that was conducted. Table 3.1 summarises how each of the dependent variables were generated, coded and defined for each logistic regression model.

Table 3.1: List of dependent variables in the study, their definition, their coding and the regression model they were used for.

Variable Name	Definition	Coding in study	Regression
Risky sexual behaviours	Whether the adolescents engaged in risky sexual behaviours	Yes (1) No (0)	Binary logistic regression
Risky substance use behaviours	Whether the adolescents engaged in substance use behaviours	Yes (1) No (0)	Binary logistic regression
Other risky behaviours	Whether the adolescents engaged in other risky behaviours	Yes (1) No (0)	Binary logistic regression

Variable Name	Definition	Coding in study	Regression
At least one type risky behaviour	Whether the adolescent engaged in at least one type of behaviour	Yes (1) No (0)	Binary Logistic regression
Any adolescent risky behaviour	The number of categories of behaviour that the adolescent engaged in	No behaviour (0) Any one category of behaviour (1) Any two categories of behaviours (2) All three categories of behaviours (3)	Multinomial logistic regression

The first three dependent variables that were analyzed in this study was binary outcomes for the categories of risky behaviours, namely; risky sexual behaviours, risk substance use behaviours and other risky behaviours. The responses for each category was either yes or no referring to whether the adolescent engaged in any of the behaviours in the category. The sexual behaviours included having multiple sexual partners and not using a condom during sexual intercourse. The substance use behaviours included drug use, alcohol use and tobacco use. The other risky behaviours category included; carrying weapons to school, driving without a seatbelt, driving under the influence of alcohol, being a passenger in a car driven by someone under the influence of alcohol and attempting suicide.

Another binary dependent variable for a binary logistic regression was generated for engaging in at least one type of behaviour. The types of behaviour were the behaviours within the different categories of risky behaviours such as lack of condom use, multiple sexual partners, tobacco use, drug use, alcohol use, carrying weapons to school, driving without a seatbelt, driving under the influence of alcohol, being a passenger in a car driven by someone under the influence of alcohol and attempting suicide.

The any adolescent risky behaviour variable was used for the multinomial logistic regression analyses. It was categorized by the different number of categories of risky behaviour that adolescents engaged in. The categories were; no behaviour, one category of behaviour, two categories of behaviour and three categories of behaviour. The were three categories of risky behaviour that the variable made reference to namely; risky sexual behaviours (lack of

condom use and multiple sexual partners), risky substance use behaviours (tobacco use, alcohol use and drug use) and other risky behaviours (driving without a seatbelt, driving under the influence of alcohol, being a passenger in a car driven by someone who was under the influence of alcohol, carrying weapons to school and attempting suicide).

3.4.2. Main independent Variables

Table 3.2: The main independent variable, in the indexed form, its definition and coding in this study.

Variable Name	Definition	Coding in study
Adolescent social association membership	Adolescent social association membership: whether the adolescent was a member of any one of the social associations; religious, sports, drama, choir and other groups.	Yes (1) No (2)

The main independent variable for this study is adolescent social association memberships that will be generated as an index variable combining the five social associations; religious/youth group, sports group, drama group, choir group and other group. The social association membership index variable combined all the "yes" and "no" responses to each social association membership.

Table 3.3: The main independent variables in their non-indexed form, their definition and their coding in the study.

Variable name	Definitions	Coding in study
Sports	Whether the adolescent participated in sports.	Yes (1) No (2)
Religious group	Whether the adolescent participated in a religious group or youth club.	Yes (1) No (2)
Drama	Whether the adolescent participated in drama.	Yes (1) No (2)

Variable name	Definitions	Coding in study
Choir	Whether the adolescent participated in choir.	Yes (1) No (2)
Other	Whether the adolescent participated in any other social associations that are not mentioned.	Yes (1) No (2)

3.4.3. Control Variables

Below is the list of control variables that were used in the research, their definition and their coding. The control variables were categorized as follows; demographic, socio-economic, family exposure and attitudes variables.

Table 3.4: List of demographic, socioeconomic, family exposure and attitudes variables (all control variables), their definition and coding in the study.

Variable Name	Definition	Coding in study
Demographic		
Age	The age of the adolescent	12-14 (1) 15-17 (2) 18-19 (3)
Race	Race of adolescent	White (1) Black (2) Indian (3) Coloured (4)
Sex	Sex of the adolescent	Male (1) Female (2)
Province	Province adolescents resides in	Gauteng (1) Limpopo (2) Free State (3) Mpumalanga (4) North West (5) Eastern Cape (6) Northern Cape (7) Kwazulu-Natal (8) Western Cape (9)
Socio-economic		

Education Level	Education level of adolescent	No education to grade 8 (1) Grade 9 to 12 (2)
Social Grant Status	Whether anyone in the household receives a social grant	Yes (1) No (2)
Residence	The type of residence that the adolescent lives in	Urban (1) Rural (2)
Family Exposure		
Family violence	If the adolescent has been exposed to family violence in the form of family members arguing or physically beating each other	Yes (1) No (2
Attitudes		
Goals for the future	Whether the adolescent had future goals that they wanted to achieve.	Yes (1) No (2)
Alcohol gives good image	Whether the adolescent believed that alcohol gives them a good image.	Yes (1) No (2)
Smoking gives good image	Whether the adolescent believed that smoking gives them a good image.	Yes (1) No (2)
Should wait for marriage for sex	Whether the adolescent believed that they should wait for marriage before they had sex.	Yes (1) No (2)

3.5. Ethical Issues

The study has used secondary survey data and the information on the respondents of the survey is anonymous and is unknown by the researcher conducting this research, this therefore protects the identity of the respondents. In this respect, no ethical clearance was required to undertake the study.

3.6. Data Management

The data was managed and analyzed using Stata statistical software package version 13.

3.7. Data Analysis

Examine level of risky behaviour and social association

To examine the levels of risky behaviour, frequency and percentage distributions of the different types of risky behaviours in their three categories of behaviour were done. Rates of risky behaviour as per the different types of risky behaviour; lack of condom use during first sex, multiple sexual partners, drug use, tobacco use, alcohol use, carrying weapons to school, driving without a seatbelt, driving under the influence of alcohol, being a passenger in a car driven by someone under the influence of alcohol and attempting suicide were also generated per 1000 adolescents in South Africa. The rates of engaging in at least one type of behaviour were done for each of the different characteristics also per 1000 adolescents in South Africa. The rates of the categories of risky behaviour; sexual, substance use and other risky behaviour were generated for each of the provinces in South Africa. The provincial rates of the categories of risky behaviour were graphically presented on maps generated using Quantum GIS version 2.8 (a mapping software). The rates of risky behaviour data were imported from Microsoft Excel to Quantum GIS. The South Africa geospatial vector data was provided by Statistics South Africa which enabled the data from Microsoft Excel to be presented in the correct South African provinces.

The levels of social association membership were presented in tables. Rates social association membership were generated by sex and by province.

Identifying determinants and examining the relationship between social association membership and risky behaviour

Determinants of risky behaviour and the relationship between social association membership and risky behaviours were examined by conducting four binary logistic regression models and one multinomial logistic regression model.

The first three binary logistic regression analyses conducted were for the different categories of risky behaviour; risky sexual behaviours, risky substance use behaviours and other risky behaviours. Both unadjusted and models were done for each of the regression analysis models. The adjusted model included all the key independent variables and control variables.

The fourth binary logistic regression model was on engaging in at least one type of risky behaviour. Both unadjusted and adjusted models were done. The adjusted model included all the key independent variables and the control variables.

Finally, a multinomial logistic regression measuring engaging in any of the different number of categories of risky behaviour was done; the variable was categorised as no behaviour, one category of behaviour, two categories of behaviour and all three categories of behaviour. Unadjusted and adjusted models were done. Two adjusted models were done; the first one included the social association membership index variable and the demographic, socioeconomic, family exposure and attitudes variables. The second model contained only the individual social association membership variables; drama, choir, sports, religious and other social associations.

The different regression analyses conducted in this research were done to enable comparisons between the various ways of engaging in behaviours. The different models allow comparison of engaging in different categories of behaviours and different numbers of categories of behaviours. This was done to take into account that categories and number of behaviours have different levels of effect and therefore running the analyses by categories and by numbers would better explain the relationship between social association and risky behaviour.

3.8. Strategy for the dissemination of findings

Some of the findings from this research have already been presented at national and international conference and others are expected to be published in peer-reviewed journals. Table 3.5 lists the conferences that the research has already been presented at as well as the conferences that the research is still expected to presented at. The table also presents the journals that the papers will be submitted to and the dates.

Table 3.5: Dissemination of preliminary and final findings in conferences and journals

Title	Conference Presentations	Targeted Journals
Social association membership and risky behaviours among adolescents in South Africa	Social Science Research Council Graduate Summer Conference, oral, 2015, Minnesota, United States of America Population Association of Southern Africa, oral, 2015, Durban, South Africa Wits School of Public Health Healthography Conference, poster, 2015, Johannesburg, South Africa African Population Studies Conference, oral, 2015, Pretoria, South Africa Wits University Cross Faculty Symposium, poster, 2016, Johannesburg, South Africa Population Association of America, poster, 2016, Washington DC, USA	Journal of Youth and Society, March 2016
Family violence and family disruption and its relation to illicit drug use among South African Young People aged 12 to 22.	Population Association of America, poster, 2016, Washington DC, USA Population Association of Southern Africa, oral, 2016, Johannesburg, South Africa Family Demography and Post-2015 Development Goals Conference, oral, 2016 Johannesburg, South Africa	Journal of Youth and Society, March 2016

4. Chapter Four: Results

4.1. Descriptive Statistics Results

4.1.1. Estimation of the levels of risky behaviours and social associations

Table 4.1: Frequency and percentage distribution of the different types of risky behaviours in their categories of risky behaviours among adolescents aged 12 to 19 in South Africa, 2008.

Sexual Behaviours		
Condom use during first sex	**Freq.**	**Percent**
Yes	632	19
No	303	9
No response	24	72
Total	3335	100
Multiple sexual partners	**Freq.**	**Percent**
2ormore	284	9
lessthan1	659	20
No response	2392	72
Total	3335	100
Substance Use		
Drug use	**Freq.**	**Percent**
Yes	196	6
No	3136	94
No response	3	0
Total	3335	100
Tobacco Use	**Freq.**	**Percent**
Yes	695	21
No	2637	79
No response	3	0
Total	3335	100
Alcohol use	**Freq.**	**Percent**
Yes	1077	32
No	2255	68
No response	3	0
Total	3335	100
Other Behaviours		
Weapons at school	**Freq.**	**Percent**
Yes	35	1
No	3296	99
No response	4	0
Total	3335	100

Driving without seatbelt	**Freq.**	**Percent**
Yes	1877	56
No	1447	43
No response	11	0
Total	3335	100
Driving under the influence of alcohol	**Freq.**	**Percent**
Yes	97	3
No	3230	97
No response	8	0
Total	3335	100
Passenger with driver under the influence of alcohol	**Freq.**	**Percent**
Yes	949	28
No	2382	71
No response	4	0
Total	3335	100
Attempted Suicide	**Freq.**	**Percent**
Yes	133	4
No	35	1
No response	3167	95
Total	3335	100

**No responses were dropped for the inferential statistics*

Table 4.1 provides the frequency and percentage distribution of the types of risky behaviours in their three categories; sexual behaviours, substance use behaviours and other behaviours. Table 1 in Appendix 1 tabulates the rates of engaging in the different types of risky behavior. These variables have the categories yes, no or no response, and no response means that the values were missing. The last category, no response was not a category in the inferential statistics; it remained as missing values.

Among those who engaged in sexual behaviours 9% of adolescents did not use condoms, 19% did use condoms and 72% were not sexually active. Regarding having multiple sexual partners, 9% had more than two partners, 20% had less than one partners and 71% were not sexually active. In the substance use category, 6% had used substance and 94% did not use drugs whilst 0% adolescents did not respond. Regarding the use of tobacco, 21% of adolescents had used it compared to 79% who had not used it. Alcohol was the substance which had the highest level of utilization (32%) as opposed to the other two substances.

In the other risky behaviours category, driving without a seatbelt on was high with 56% of adolescents who had not put on a seatbelt whilst driving. Driving under the influence of alcohol was low with 3% of adolescents having reported driving under the influence of alcohol. Being a passenger in a car that was driven by someone who was under the influence of alcohol was higher than driving under the influence of alcohol (28%). Of the 3335 adolescents, 28% had been a passenger in a car that was driven by someone who was under the influence of alcohol and 71% had not. A large number of adolescents, 95%, did not answer the question on attempted suicide whilst 4% reported having attempted to commit suicide and 1% reporting that they had not attempted suicide.

The rates of the types of risky behaviour were highest for driving without a seatbelt 563 per 1000 adolescents and the rate was lowest for carrying weapons to school at 10 per 1000 adolescents.

Table 4.2: Frequency and percentage distribution and rates of engaging in at least one type of risky behaviour as per the characteristics of adolescents aged 12 to 19 in South Africa, 2008.

Characteristic	**Adolescent risky behaviour**					
Age	**Yes**	**Rate per 1000**	**No**	**Rate per 1000**	**Total**	**Rate per 1000**
12 to 14	444	657	232	343	676	203
15 to 17	1255	752	414	248	1669	500
18 to 19	800	811	187	189	987	296
No response	2	-	1	-	3	-
Total	2501	-	834	-	3335	-
Race	**Yes**	**Rate per 1000**	**No**	**Rate per 1000**	**Total**	**Rate per 1000**
White	330	871	49	431	379	114
Black	161	71	672	982	2282	684
Indian	133	715	53	950	186	56
Coloured	428	879	59	404	487	146
No response	0	-	1	-	1	-
Total	2501	-	834	-	3335	-
Sex						
Male	1435	767	435	233	1870	561
Female	1066	728	398	272	1464	439
No response	0	-	1	-	1	-
Total	2501	-	834	-	3335	-
Province						

Characteristic	Adolescent risky behaviour					
Gauteng	470	820	103	180	573	172
Limpopo	69	216	251	784	320	96
Free State	242	809	57	191	299	90
Mpumalanga	204	819	45	181	249	75
North West	269	862	43	138	312	94
Eastern Cape	333	808	79	192	412	124
Northern Cape	146	772	43	228	189	57
Kwazulu-Natal	394	735	142	265	536	161
Western Cape	374	842	70	158	444	133
No response	0	-	1	-	1	-
Total	2501	-	834	-	3335	-
Education						
None to grade 8	733	695	321	305	1054	316
Grade 9 to 12	1740	77	507	226	2247	674
No response	28	-	6	-	34	-
Total	2501	-	834	-	3335	-
Social Grant Status						
Yes	1021	712	413	288	1434	430
No	1471	779	417	221	1888	566
No response	9	-	4	-	13	-
Total	2501	-	834	-	3335	-
Residence						
Urban	1899	813	437	187	2336	700
Rural	602	603	396	397	998	299
No response	0	-	1	-	1	-
Total	2501	-	834	-	3335	-
Family violence						
Yes	30	698	13	302	43	13
No	2471	751	820	249	3291	987
No response	0	-	1	-	1	-

Characteristic	Adolescent risky behaviour					
Total	2501	-	834	-	3335	-
Goals for the future						
Yes	2462	749	823	251	3285	985
No	35	833	7	167	42	13
Don't know	4	-	4	-	8	-
Total	2501	-	834	-	3335	-
Alcohol gives good image						
Yes	176	921	15	79	191	57
No	2275	749	761	251	3036	910
Don't know	50	-	58	-	108	-
Total	2501	-	834	-	3335	-
Smoking gives good image						
Yes	160	874	23	126	183	55
No	2278	752	751	248	3029	908
Don't know	63	-	60	-	123	-
Total	2501	-	834	-	3335	-
Should wait for marriage for sex						
Yes	1837	740	645	260	2483	745
No	648	791	171	209	819	63
Don't know	16	-	18	-	34	-
Total	2501	-	834	-	3335	-

**No responses and don't know were dropped for the inferential statistics*

The rate of engaging in risky behaviour was highest among adolescents aged 18 to 19 at 811 per 1000 adolescents compared to 657 per 1000 adolescents aged 12 to 14. The rate of engaging in risky behaviour was higher for Coloured adolescents at 879 per 1000 adolescents and White adolescents at age 871 per 1000 adolescents. Male adolescents had a higher rate of engaging in risky behaviour (767 per 1000 male adolescents) when compared to females (728 per 1000 female adolescents). The rate of engaging in at least one type of behaviour was lowest in the Limpopo province at 216 per 1000 adolescents and highest in the North West province 862 per 1000 adolescents followed by Western Cape

(842 per 1000 adolescents) and Gauteng (820 per 1000 adolescents). Adolescents in urban areas reported a higher rate of engaging in risky behaviour than those residing in rural areas. Adolescents who had goals for the future reported lower rates of engaging in risky behaviour (749 per 1000 adolescents) than those who did not have goals for the future (833 per 1000 adolescents). Adolescents that believed that alcohol and smoking gives one a good image had a higher rate of engaging in risky behaviour when compared to those who didn't believe that alcohol and smoking gives them a good image.

Table 4.3: Frequency and percentage distribution of social association membership by sex among adolescents aged 12 to 19 in South Africa, 2008.

Social Association	Sex					
	Male		Female		Total	
Drama	**Freq.**	**Perc.**	**Freq.**	**Perc.**	**Freq.**	**Perc.**
Yes	151	47	168	53	319	100
No	1717	57	1296	43	3013	100
No Response	2	67	0	0	3	67
Total	1870	56	1464	44	3335	100
Choir						
Yes	310	47	350	53	660	100
No	1557	58	1112	42	2669	100
No Response	3	50	2	33	6	83
Total	1870	56	1464	44	3335	100
Religious groups						
Yes	622	53	547	47	1169	100
No	1247	58	917	42	2164	100
No Response	1	50	0	0	2	50
Total	1870	56	1464	44	3335	100
Yes	1149	67	561	33	1710	100
No	720	44	903	56	1623	100
No Response	1	50	0	0	2	50
Total	1870	56	1464	44	3335	100
Other						
Yes	140	54	119	46	259	100
No	1722	56	1337	44	3059	100
No Response	8	47	8	47	17	94
Total	1870	56	1464	44	3335	100

**No responses were dropped for the inferential statistics and rates were not calculated for them.*

Table 4.3 provides frequency and percentage distribution of social association membership as per the five different types of social association membership by sex. The rates of social association membership were tabulated in Table 2 in Appendix 1. Adolescents generally had a higher rate of being involved in sports groups (513 per 1000 adolescents) and religious groups (351 per 1000 adolescents). Female adolescents had higher rates of engaging in drama (115 per 1000 female adolescents), choir (239 per 1000 female adolescents),

religious groups (374 per 1000 female adolescents) and other social associations (81 per 1000 female adolescents). Male adolescents had a higher rate of engaging in sports groups compared to female adolescents at 614 per 1000 male adolescents and 383 per 1000 female adolescents.

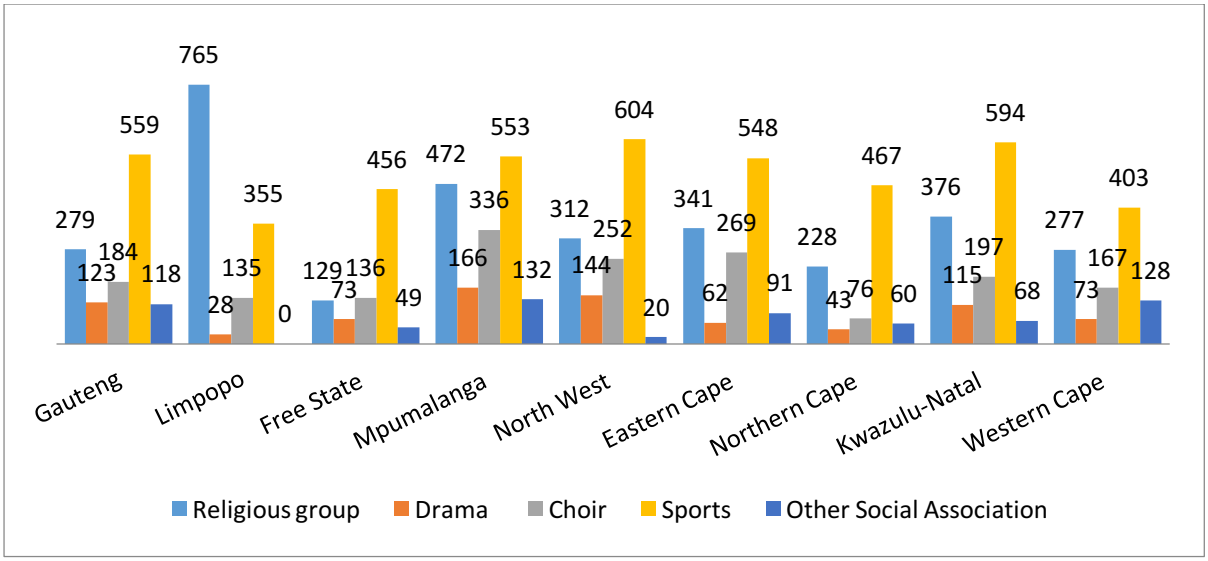


Figure 4.1: Rates of social association membership by province per 1000 adolescents aged 12 to 19 in South Africa, 2008

Figure 4.1 presents the rates of social association membership by the different provinces in South Africa. The overall rate of membership in social associations was highest for sports and religious groups and lowest for drama groups.

The rates of membership in religious groups were lowest in the following provinces Free State (129 per 1000 adolescents), Northern Cape (228 per 1000 adolescents), Western Cape (277 per 1000 adolescents). The rates of membership in religious groups were highest in the Limpopo province at a rate of 765 per 1000 adolescents, followed by Mpumalanga at a rate of 472 per 1000 adolescents and Kwazulu Natal at 376 per 1000 adolescents.

Regarding drama, membership was lowest for adolescents in the Limpopo province at 28 per 1000 adolescents, Northern Cape 43 per 1000 adolescents and the Eastern Cape at 62 per 1000 adolescents. Rates of membership in drama were highest in Mpumalanga at 166 per 1000 adolescents, North West province at 144 per 1000 adolescents and Kwazulu Natal at 115 per 1000 adolescents.

Membership in choir groups was lowest for adolescents in the Northern Cape at 76 per 1000 adolescents, Limpopo 135 per 1000 adolescents and Free State 136 per 1000 adolescents. The highest rates of choir membership were in Mpumalanga at 336 per 1000 adolescents, Eastern Cape 269 per 1000 adolescents and North West at 252 per 1000 adolescents.

The provinces with the lowest rates of sports group memberships were in Limpopo at 355 per 1000 adolescents, Western Cape at 403 per 1000 adolescents and Northern Cape 467 per 1000 adolescents. The rates of membership in sports groups were highest in North West at 604 per 1000 adolescents, Kwazulu Natal at 595 per 1000 adolescents and Gauteng at 559 per 1000 adolescents.

The rate of adolescents who were members of any other social associations besides the above mentioned were lowest in the Limpopo province at rate of 0 per 1000 adolescents, North West at 20 per 1000 adolescents and Free State at 49 per 1000 adolescents. Provinces with the highest rates of membership were Mpumalanga at 132 per 1000 adolescents, Western Cape at 128 per 1000 adolescents and Gauteng at 118 per 1000 adolescents.

4.1.2. Rates of categories of risky behaviour by province

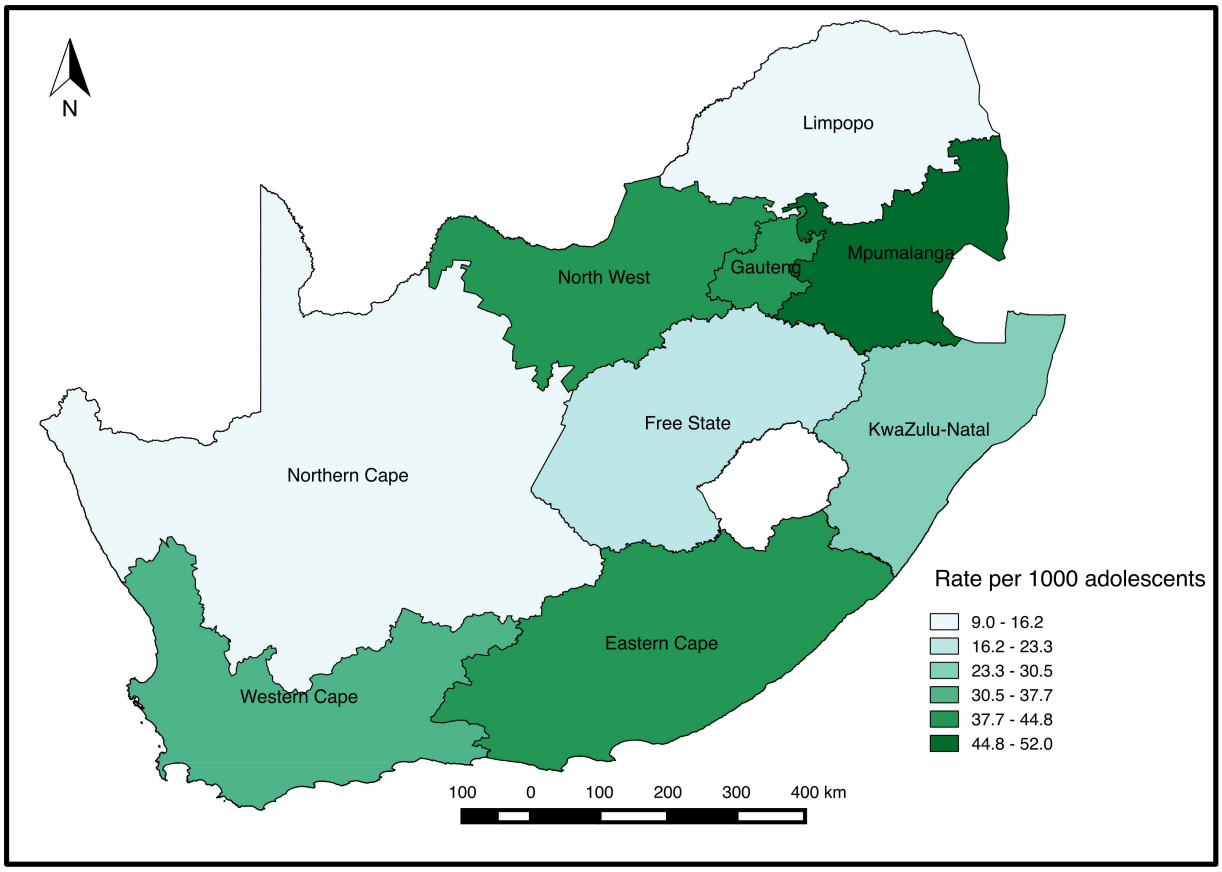


Figure 4.2 (a): Rates of engaging in risky sexual behaviour per 1000 adolescents aged 12 to 19 South Africa by province, 2008

Figure 4.2 (a) maps the rates of engaging in risky sexual behaviours per 1000 South African adolescents aged 12 to 19 by their province of residence. Rates of engaging in risky sexual behaviours were highest in Mpumalanga followed by Gauteng, the North West and Eastern Cape provinces. Limpopo and Northern Cape provinces had the lowest rates of engaging in risky sexual behaviours between 9.0 and 16.2 per 1000 adolescents in South Africa.

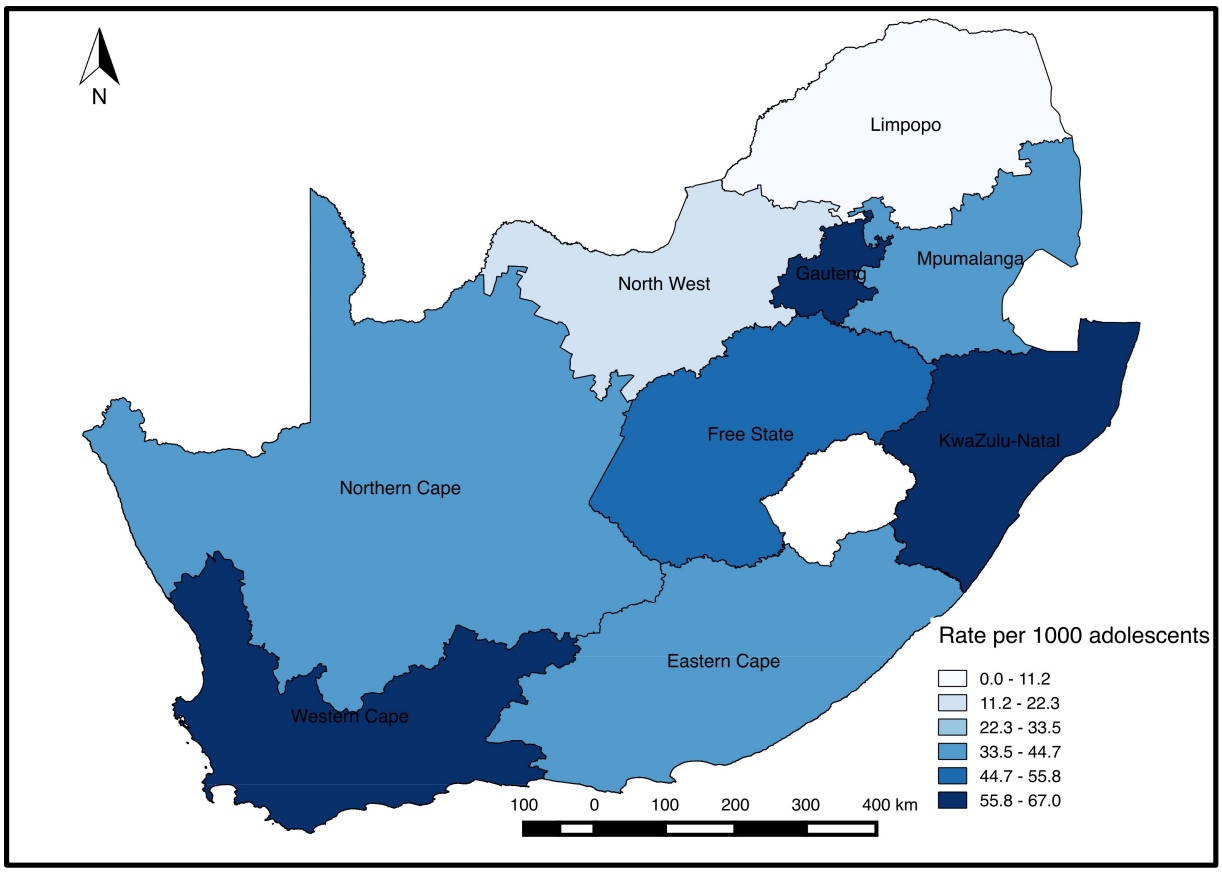


Figure 4.2 (b): Rates of risky substances behaviour per 1000 adolescents aged 12 to 19 in South Africa by province, 2008

Rates of engaging in risky substances were highest for adolescents in the Western Cape, Kwazulu-Natal and Gauteng provinces and the rate was between 55.8 and 67.0 per 1000 adolescents. Substance use rates were lowest in the Limpopo province where they were between 0 and 11.2 per 1000 adolescents.

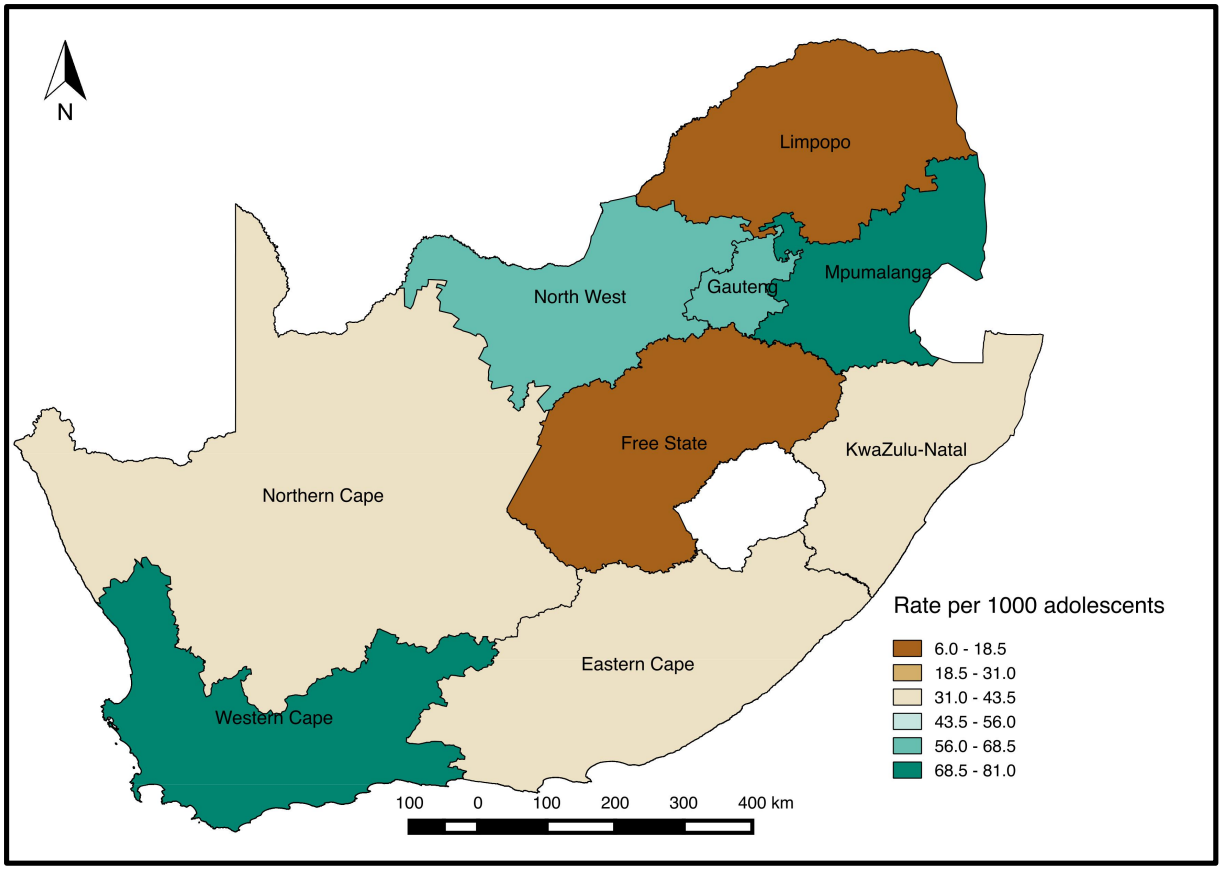


Figure 4.2 (c): Rates of engaging in other risky behaviours per 1000 adolescents aged 12 to 19 in South Africa by province, 2008

Engaging in other risky behaviours was highest among adolescents in Western Cape and Mpumalanga at a rate between 68.5 and 81.0 per 1000 adolescents. This was followed by Gauteng and North West provinces at a rate between 56.0 and 68.5 per 1000 adolescents. Limpopo and Free State were the provinces with the lowest rates of risky behaviours at a rate between 6.0 and 18.5 per 1000 adolescents.

4.2. Inferential Statistics Results

4.2.1. Unadjusted Binary Logistic Regression Model Results on the three different categories of risky behaviour

Table 4.5: Bivariate binary logistic regression model results of the determinants of the risky behaviours and the relationship between social association membership and the three different categories of risky behaviour among adolescents in South Africa, producing odds ratios, 2008.

	Sexual Behaviour		Substance Use Behaviour		Other Risky Behaviour	
Variables	**Odds Ratio**	**Confidence Interval**	**Odds Ratio**	**Confidence Interval**	**Odds Ratio**	**Confidence Interval**
Religious group						
Yes	RC		RC		RC	
No	1.33	0.86;2.06	1.48*	1.02;2.14	0.89	0.63;1.25
Sports						
Yes	RC		RC		RC	
No	0.82	0.55;1.21	1.13	0.81;1.56	1.34	0.96;1.85
Drama						
Yes	RC		RC		RC	
No	2.67*	0.97;7.32	1.25	0.68;2.28	0.46	0.31;0.72
Choir						
Yes	RC		RC		RC	
No	1.17	0.69;1.69	1.41	0.89;2.21	0.75	0.51;1.10
Other Social Associations						
Yes	RC		RC		RC	
No	0.72	0.38;1.37	0.73	0.42;1.25	0.50	0.31;0.80
Age						
12 to 14	RC		RC		RC	
15 to 17	13.09**	1.78;95.97	3.60**	1.63;7.91	2.09**	1.19;3.67
18 to 19	50.96**	7.06;367.86	8.79**	4.04;19;15	2.88**	1.62;5.10
Race						
White	RC		RC		RC	
Black	2.32*	1.00;5.35	0.22**	0.15;0.34	0.40**	0.26;0.63
Indian	1.34	0.37;4.81	0.75	0.40;1.40	0.55	0.25;1.23
Coloured	1.53	0.56;4.12	0.78	0.49;1.24	1.28	0.78;2.09
Sex						
Male	RC		RC		RC	
Female	0.42**	0.27;0.65	0.58**	0.41;0.82	3.02**	2.12;4.29
Province						
Gauteng	RC		RC		RC	
Limpopo	0.09*	0.01;0.66	1		0.06**	0.0;0.45

	Sexual Behaviour		Substance Use Behaviour		Other Risky Behaviour	
Province	**Odds Ratio**	**Confidence Interval**	**Odds Ratio**	**Confidence Interval**	**Odds Ratio**	**Confidence Interval**
Free State	0.39	0.15;1.05	0.82	0.44;1.54	0.28**	0.11;0.71
Mpumalanga	1.31	0.65;2.61	0.67	0.32;1.37	1.28	0.71;2.32
North West	0.94	0.46;1.90	0.26**	0.09;0.66	0.94	0.51;1.70
Eastern Cape	0.92	0.48;1.75	0.58	0.31;1.07	0.51*	0.27;0.98
Northern Cape	0.37	0.11;1.24	0.59	0.25;1.36	0.61	0.27;1.40
Kwazulu-Natal	0.65	0.34;1.24	1.09	0.67;1.76	0.67	0.39;1.16
Western Cape	0.74	0.38;1.45	1.07	0.64;1.77	1.35	0.83;2.21
Social Grant Status						
Yes	RC		RC		RC	
No	0.72	0.48;1.07	1.66**	1.17;2.36	1.28	0.91;1.79
Education						
None to grade 8	RC		RC		RC	
Grade 9 to 12	3.26**	1.81;5.89	2.92**	1.49;3.51	1.78**	1.20;2.66
Residence						
Urban	RC		RC		RC	
Rural	0.82	0.52;1.29	0.18**	0.09;0.34	0.47**	0.30;0.72
Family violence						
Yes	RC		RC		RC	
No	0.43	0.13;1.40	0.47	0.16;1.33	0.17**	0.08;0.37
Goals for the future						
Yes	RC		RC		RC	
No	1.55	0.37;6.49	1.59	0.48;5.19	1.02	0.24;4.26
Alcohol gives good image						
Yes	RC		RC		RC	
No	0.26**	0.15;0.44	0.36**	0.22;0.59	1.14	0.55;2.36
Smoking gives good image						
Yes	RC		RC		RC	
No	0.40**	0.22;0.74	0.40**	0.24;0.66	0.70	0.38;1.28
Should wait for marriage for sex						
Yes	RC		RC		RC	
No	6.25**	4.12;9.48	4.12	2.96;5.74	1.32	0.92;1.88

*RC=Reference Category, Test was run at 95% significance level, *=p<0.05 **=p<0.01*

The unadjusted results for engaging in each of the categories of risky behaviours shows that not being a member of a religious group results in the increased odds of engaging in substance use behaviour by 1.48 times. Although not statistically significant not being a member of a religious group increased the odds of engaging in risky behaviour by 1.33 times and decreased the odds of engaging in other risky behaviours by 0.98 times. Not being a member of a drama group increases the likelihood engaging in risky sexual behaviour by the odds of 2.67.

Adolescents aged 15 to 17 and 18 to 19 had increased odds of engaging in both risky sexual and substance use behaviours compared to those aged 12 to 14. Black adolescents had 2.32 times higher odds of engaging in risky sexual behaviour, 0.22 times decreased odds of engaging in risky substance use behaviour and 0.40 times decreased odds of engaging in other risky behaviours. The odds of engaging in risky sexual and risky substance use behaviours were 0.42 times lower and 0.58 times lower and the odds of females engaging in other risky behaviours were 3.02 times high compared to male adolescents. The odds of adolescents in the Limpopo province engaging in risky sexual behaviours and other risky behaviours was 0.09 and 0.06 times lower when compared to adolescents in Gauteng. Adolescents in the North West had 0.26 times lower odds of engaging in risky substance use behaviour whilst adolescents in the Eastern Cape had 0.51 times lower odds of engaging in other risky behaviour. Although the results were not statistically significant, adolescents in the Western Cape province had 1.07 increased odds of engaging in substance use behaviours and 1.35 increased odds of engaging in other risky behaviours.

In terms of social grant status, adolescents who were not from families that were recipients of social grants had 1.66 times higher odds of engaging in risky behaviours. When adolescents were not exposed to family violence they had decreased odds of engaging in the other risky behaviours. Having goals for the future was not significantly associated with any of the three categories of risky behaviours. However, the odds of engaging in risky behaviour were higher for each category of risky behaviour. Adolescents who did not believe that smoking and alcohol gives one a good image had decreased odds of engaging in both risky sexual and substance use behaviours. The odds of engaging in risky sexual

behaviour increased by 6.25 times for adolescents who did not believe that they should wait for marriage before having sex.

4.2.2. Adjusted Binary Logistic Regression Model Results on the three different categories of risky behaviour

Table 4.6: Multivariate binary logistic regression model results of the determinants of the risky behaviours and the relationship between social association membership and the three different categories of risky behaviour among adolescents in South Africa, producing odds ratios, 2008.

	Sexual Behaviour		Substance use behaviour		Other Risky Behaviour	
Variables	**Odds Ratio**	**Confidence Interval**	**Odds Ratio**	**Confidence Interval**	**Odds Ratio**	**Confidence Interval**
Religious group						
Yes	RC		RC		RC	
No	0.94	0.55;1.59	1.36	0.86;2.14	0.88	0.59;1.31
Sports						
Yes	RC		RC		RC	
No	0.73	0.45;1.55	1.11	0.75;1.64	1.29	0.88;1.88
Drama						
Yes	RC		RC		RC	
No	2.44	0.83;7.09	0.87	0.44;1.70	0.57*	0.34;0.94
Choir						
Yes	RC		RC		RC	
No	1.03	0.56;1.90	0.89	0.51;1.51	0.87	0.56;1.35
Other Social Associations						
Yes	RC		RC		RC	
No	0.62	0.29;1.31	0.97	0.52;1.77	0.75	0.43;1.27
Age						
12 to 14	RC		RC		RC	
15 to 17	8.87*	1.13;69.51	4.16**	1.62;10.64	2.69**	1.36;5.30
18 to 19	29.16**	3.68;230.85	9.66**	3.63;25.71	3.61**	1.73;7.52
Race						
White	RC		RC		RC	
Black	2.61*	1.04;6.48	0.22**	0.13;0.38	0.40**	0.23;0.69
Indian	1.65	0.42;6.41	0.62	0.29;1.29	0.51	0.21;1.21
Coloured	1.62	0.56;4.65	0.92	0.53;1.59	1.17	0.66;2.06
Sex						
Male	RC		RC		RC	
Female	0.56*	0.33;0.94	0.66*	0.44;0.98	3.23**	2.20;4.72
Province						
Gauteng	RC		RC		RC	
Limpopo	0.10*	0.01;0.83	1.00		0.07**	0.00;0.55
Free State	0.31*	0.10;0.87	1.02	0.51;2.02	0.32*	0.12;0.86
Mpumalanga	1.47	0.65;3.30	1.14	0.50;2.59	1.66	0.86;3.19

	Sexual Behaviour		Substance use behaviour		Other Risky Behaviour	
Province (continued)	**Odds Ratio**	**Confidence Interval**	**Odds Ratio**	**Confidence Interval**	**Odds Ratio**	**Confidence Interval**
North West	0.77	0.34;1.71	0.30*	0.10;0.80	1.29	0.65;2.53
Eastern Cape	0.92	0.42;1.99	0.62	0.30;1.27	0.45	0.21;0.91
Northern Cape	0.38	0.10;1.38	0.53	0.20;1.36	0.60	0.24;1.44
Kwazulu-Natal	0.96	0.44;2.05	1.42	0.79;2.53	0.68	0.36;1.24
Western Cape	0.85	0.39;1.84	0.69	0.38;1.24	0.79	0.45;1.40
Social Grant Status						
Yes	RC		RC		RC	
No	0.65	0.41;1.03	1.07	0.70;1.62	1.03	0.69;1.51
Education						
None to grade 8	RC		RC		RC	
Grade 9 to 12	1.24	0.62;2.47	0.77	0.45;1.31	0.97	0.58;1.60
Residence						
Urban	RC		RC		RC	
Rural	0.68	0.38;1.20	0.41**	0.20;0.80	0.71	0.41;1.19
Family violence						
Yes	RC		RC		RC	
No	0.27**	0.07;0.98	0.34	0.10;1.09	0.14**	0.05;0.32
Goals for the future						
Yes	RC		RC		RC	
No	1.75	0.37;8.18	0.77	0.20;2.91	0.50	0.11;2.28
Alcohol gives good image						
Yes	RC		RC		RC	
No	0.54	0.28;1.02	0.70	0.37;1.31	1.21	0.54;2.67
Smoking gives good image						
Yes	RC		RC		RC	
No	0.86	0.41;1.80	0.61	0.31;1.17	0.66	0.32;1.34
Should wait for marriage for sex						
Yes	RC		RC		RC	
No	4.17**	2.64;6.57	3.66**	2.52;5.30	1.43	0.96;2.12

*RC=Reference Category, Test was run at at 95% significance level, *=p<0.05 **=p<0.0*

Results from the binary logistic regression model indicate that the only social association significantly associated with any of the type of behaviours was drama and it was associated with other risky behaviours. The odds of engaging in other risky behaviours were 0.57 times lower for adolescents who were not members of a drama group compare to those who were members. The age groups 15 to 17 years old and 18 to 19 years old were significantly associated with all three types of behaviours at a p-values that was les than 0.05. The odds of engaging in sexual behaviours were 8.87 times higher for adolescents aged 15 to 17 years old when compared to adolescents aged 12 to 14 years old. Adolescents aged 18 to 19 years old were 29.16 times more likely of engaging in sexual behaviours compared to adolescents aged 12 to 14 years old. For both substance use behaviours and other risky behaviours, the odds of engaging in risky behaviour increased between age 15 to 17 years old and age 18 to 19 years old.

Adolescents from the Black population group were 2.61 times more likely to engage in sexual behaviours, 0.22 less likely to engage in substance use behaviours and 0.40 times less likely to engage in other risky behaviours compared to adolescents in the White population. Sex was significantly associated with all three types of risky behaviours. The odds of female adolescents engaging in sexual behaviours and substance use behaviours were 0.56 times lower and 0.66 times lower respectively when compared to male adolescents. However, in comparison to male adolescents, the odds of females engaging in other risky behaviours were 3.23 times higher. Adolescents in the Limpopo province had lower odds of engaging in sexual behaviours (0.10) and other risky behaviours (0.07) when compared to adolescents in the Gauteng province. The odds of engaging in other risky behaviours were 0.45 times lower for adolescents in the Eastern Cape when compared to those in Gauteng. In the North West, the odds of adolescents engaging in substance use behaviours were 0.30 times lower compared to in Gauteng.

Adolescents in rural areas were 0.02 times less likely to engaged in substance use behaviours when compared to those in urban areas. Regarding exposure to family violence, adolescents who had not been exposed to it were 0.27 time less likely to engage in sexual behaviours and 0.14 times less likely to engage in other risky behaviours when compared to adolescents who had been exposed to family violence.

When adolescents did not believe that they should wait for marriage in order for them to have sex, they had 4.17 times higher odds of engaging in sexual behaviours and 3.66 higher odds of engaging in substance use behaviours when compared to adolescents who believed that they should wait for marriage in order for them to have sex.

4.2.3. Unadjusted Binary Logistic Regression Model Results on engaging in at least one type of risky behaviour

Table 4.7: Bivariate and multivariate binary logistic regression model results of the determinants of engaging in at least one type of risky behaviour and the relationship between social association membership and at least one type of risky behaviour among adolescents in South Africa, producing odds ratios, 2008.

Variables	Unadjusted		Adjusted	
	Odds Ratio	Confidence Interval(CI)	Odds Ratio	Confidence Interval(CI)
Religious group				
Yes	RC		RC	
No	1.22*	1.03;1.45	0.70**	0.56;0.88
Sports				
Yes	RC		RC	
No	0.77**	0.65;0.90	0.86	0.71;1.05
Drama				
Yes	RC		RC	
No	0.75	0.56;1.01	1.02	0.73;1.43
Choir				
Yes	RC		RC	
No	0.86	0.69;1.06	0.94	0.731.22
Other Social Associations				
Yes	RC		RC	
No	0.38**	0.25;0.56	0.61*	0.39;0.93
Age				
12 to 14	RC		RC	
15 to 17	1.69**	1.38;2.06	1.72**	1.30;2.28
18 to 19	2.39**	1.90;3.01	2.55**	1.80;3.61
Race				
White	RC		RC	
Black	0.34**	0.24;0.47	0.48**	0.33;0.70
Indian	0.33**	0.21;0.52	0.30**	0.18;0.49
Coloured	0.95	0.63;1.45	0.88	0.55;1.41

Variables	Unadjusted		Adjusted	
	Odds Ratio	**Confidence Interval(CI)**	**Odds Ratio**	**Confidence Interval(CI)**
Sex				
Male	RC		RC	
Female	0.84*	0.71;0.98	1.18	0.97;1.45
Province				
Gauteng	RC		RC	
Limpopo	0.06**	0.04;0.09	0.07**	0.04;0.11
Free State	0.98	0.68;1.42	1.37	0.92;2.03
Mpumalanga	0.99	0.67;1.48	1.5	0.97;2.35
North West	1.43	0.97;2.13	2.19**	1.42;3.39
Eastern Cape	0.93	0.67;1.30	1.26	0.87;1.83
Northern Cape	0.73	0.49:1.03	0.9	0.58;1.40
Kwazulu-Natal	0.61**	0.46;0.82	0.98	0.71;1.36
Western Cape	1.16	0.84;1.63	1.05	0.72;1.53
Social Grant Status				
Yes	RC		RC	
No	1.45**	1.23;1.70	1.07	0.87;1.31
Education				
None to grade 8	RC		RC	
Grade 9 to 12	1.60**	1.35;1.90	1.37*	1.05;1.78
Residence				
Urban	RC		RC	
Rural	0.36**	0.31;0.42	0.55**	0.43;0.70
Family violence				
Yes	RC		RC	
No	1.26	0.64;2.48	1.21	0.59;2.48
Goals for the future				
Yes	1.54	0.68;3.50	RC	
No			0.96	0.39;2.34
Alcohol gives good image				
Yes	RC		RC	
No	0.25**	0.14;0.43	0.42**	0.23;0.76
Smoking gives good image				
Yes	RC		RC	
No	0.42**	0.27;0.66	0.68	0.40;1.50

Variables	Unadjusted		Adjusted	
	Odds Ratio	**Confidence Interval(CI)**	**Odds Ratio**	**Confidence Interval(CI)**
Should wait for marriage for sex				
Yes	RC		RC	
No	1.34**	1.10;1.63	1.13	0.89;1.43

*RC=Reference Category, Test was run at 95% significance level, *=p<0.05 **=p<0.01*

The unadjusted binary logistic regression model on engaging in at least one type of risky behaviour reveal that the three social associations that were significantly associated with engaging in risky behaviour were religious group, sports groups and other social association groups. Adolescents who were not members of religious groups had 1.22 times increased odds of engaging in risky behaviour whilst the odd of engaging in risky behaviour for adolescents who were not involved in sports and other social associations decreased by 0.77 times and 0.38 times respectively. The older adolescents aged 15 to 27 years and 18 to 19 years both had increased odds of engaging in risky behaviours when compare to those aged 12 to 14. With reference to White adolescents, Black and Indian adolescents had decreased odds of engaging in risky behaviour. Females were found to be 0.84 times less likely to engage in risky behaviour when compared to the male counterparts. With regards to province, adolescents in Limpopo and Kwazulu-Natal had decreased odds of engaging in risky behaviour when compared to those in the Gauteng province. Although this was not statistically significant, in comparison to Gauteng adolescents, adolescents in the Western Cape, were 1.16 times more likely to engage in risky behaviour.

Adolescent who came from families where no one was a recipient of a social grant were 1.45 times more likely to engage in risky behaviour. The older adolescents, those in grade 9 to 12 when compared to those with an education level below grade 8 had 1.60 higher odds of engaging in risky behaviour. Adolescents residing in rural areas, adolescents who did not believe that alcohol and smoking gives one a good image all had decreased odds of engaging in risky behaviour. The adolescents who did not believe that they had to wait for marriage in order for them to have sex were 1.34 times more likely to engage in risky behaviour.

The adjusted binary logistic results were slightly different from the unadjusted binary logistic results. In terms of the social associations, adolescents who were members of religious groups and other social associations had decreased odds of engaging in risky behaviour. Similar to the unadjusted model, adolescents aged 15 to 17 and 18 to 19 had increased odds of engaging in risky behaviour when compared to adolescents aged 12 to 14. Only Black and Indian adolescents were significantly associated with engaging in risky behaviours with decreased odds of engaging in risky behaviour. In the North West province, adolescents were 2.19 times more likely to engage in risky behaviour and those in Limpopo were 0.07 times less likely to engage in risky behaviour. Rural adolescents were 0.55 times less likely to engage in risky behaviour compared to adolescents in urban areas. The odds of engaging in risky behaviour were 0.42 times lower for adolescents who did not believe that alcohol gives one a good image.

4.2.4. Unadjusted Multinomial Logistic Regression Model Results on the number of categories of risky behaviour

Table 4.8: Bivariate multinomial logistic model results of the determinants of the number of categories of risky behaviours among adolescents in South Africa and the relationship between social association membership and the number of categories of risky behaviour, producing relative risk ratios, 2008

Variables	1 Category of Behaviour		2 Categories of Behaviour		3 Categories of Behaviour	
	Relative risk ratio	Confidence Interval	Relative risk ratio	Confidence Interval	Relative risk ratio	Confidence Interval
Main independent (indexed)						
Social Association Membership						
Yes	RC					
No	0.71**	0.59;0.84	0.59**	0.48;0.72	0.78	0.59;1.03
Main independent (non-indexed)						
Religious group						
Yes	RC					
No	1.10	0.91;1.32	1.24*	1.01;1.53	2.01**	1.46;2.76
Sports						
Yes	RC					
No	0.78**	0.66;0.94	0.69**	0.56;0.84	0.93	0.70;1.22
Drama						
Yes	RC					
No	0.67*	0.49;0.92	0.82	0.57;2.26	1.07	0.63;1.81
Choir						
Yes	RC					
No	0.82	0.65;1.03	0.88	0.68;1.13	0.93	0.65;1.32
Other Social Associations						
Yes	RC					
No	0.41**	0.27;0.63	0.34**	0.22;0.53	0.31**	0.18;0.54
Demographic						
Age						
12 to 14	RC					
15 to 17	1.12	0.91;1.37	2.99**	2.26;3.97	7.68**	3.50;16.83
18 to 19	1.08	0.85;1.39	4.64**	3.41;6.31	30.66**	14.05;66.87
Race						
White	RC					
Black	0.50**	0.53;0.71	0.21*	0.14;0.29	0.43**	0.27;0.70
Indian	0.57**	0.35;0.92	0.21*	0.12;0.37	0.26**	0.11;0.59

Variables	1 Category of Behaviour		2 Categories of Behaviour		3 Categories of Behaviour	
	Relative risk ratio	**Confidence Interval**	**Relative risk ratio**	**Confidence Interval**	**Relative risk ratio**	**Confidence Interval**
Coloured	1.10	0.71;1.71	1.04	0.67;1.60	1.11	0.61;2.02
Sex						
Male	RC					
Female	0.96	0.81;1.47	0.75**	0.62;0.91	0.39**	0.29;0.53
Province						
Gauteng	RC					
Limpopo	0.11**	0.08;0.17	0.00**	0.00;0.02	2.17	0
Free State	1.46**	1.00;2.14	0.43**	0.27;0.68	0.45*	0.23;0.89
Mpumalanga	0.99	0.64;1.51	0.93	0.60;1.44	1.20	0.68;2.13
North West	1.75**	1.16;2.63	0.91	0.58;1.43	1.39	0.79;2.44
Eastern Cape	1.06	0.74;1.51	0.70	0.48;1.02	1.11	0.68;1.81
Northern Cape	1.13	0.74;1.73	0.37**	0.22;0.63	0.43*	0.20;0.93
Kwazulu-Natal	0.65**	0.47;0.89	0.54**	0.39;0.76	0.64	0.40;1.02
Western Cape	0.93	0.64;1.35	1.47	1.02;2.11	1.07	0.64;2.77
Socio-economic						
Social Grant Status						
Yes	RC					
No	0.71**	0.59;0.84	0.59**	0.48;0.72	0.78	0.59;1.03
Education						
None to grade 8	RC					
Grade 9 to 12	1.02	0.85;1.22	2.27**	1.8;2.82	4.7**	3.21;7.07
Residence						
Urban	RC					
Rural	0.42**	0.35;0.50	0.26**	0.20;0.32	0.30**	0.22;0.42
Family exposure						
Family violence						
Yes	RC					
No	1.64	0.76;3.57	1.22	0.54;2.74	0.71	0.26;1.89
Attitudes						
Goals for the future						
Yes	RC					
No	0.83	0.31;2.20	2.23	0.92;5.41	2.84*	0.99;8.19
Alcohol gives good image						
Yes	RC					
No	0.48*	2.68;0.86	0.19**	0.11;0.34	0.09**	0.05;0.17
Smoking gives good image						
Yes	RC					
No	0.61*	0.37;1.00	0.34**	0.21;0.56	0.20**	0.11;0.36

Variables	1 Category of Behaviour		2 Categories of Behaviour		3 Categories of Behaviour	
	Relative risk ratio	**Confidence Interval**	**Relative risk ratio**	**Confidence Interval**	**Relative risk ratio**	**Confidence Interval**
Should wait for marriage for sex						
Yes	RC					
No	0.78*	0.62;0.98	1.68**	1.34;2.11	4.68**	3.48;6.29

*RC=Reference Category, Test was run at 95% significance level, *=p<0.05 **=p<0.01*

Table 4.8 summarizes the results from the bivariate analysis which examines the relationship between the various demographic, socioeconomic, family exposure and attitudes variables in relation to the outcome variable; adolescent risky behaviour.

Adolescents who were not members of social associations had 0.71 times lower risk of engaging in one category of behaviour when compared to those who were members of social associations relative to engaging in no behaviour. The risk of engaging in two categories of behaviour was 0.59 times lower for adolescents who were not members of social associations when compared to those who were members of social associations relative to engaging in no behaviour. Lastly, when adolescents were not members of social associations they had 0.78 times lower risk of engaging in all three categories of behaviours relative to engaging in no behaviour compared to those who were members of social associations.

The main independent non-indexed variables that were significantly associated with risky behaviours were religious groups, sports and other social associations. Adolescents who were not members of religious groups had a 1.10 times higher risk of engaging in one category of behaviour, 1.24 times higher risk of engaging in two types of behaviours and 2.01 times higher risk of engaging in three types of behaviours relative to engaging in no behaviour in comparison to those who were members of social associations. Adolescents who did not participate in sports had 0.78 times decreased risk of engaging in one category of behaviour, 0.69 times decreased risk of engaging in two categories of behaviours and 0.93 times decreased risk of engaging in three categories of behaviours relative to engaging in no behaviours compared to adolescents who participated in sports. The non-involvement of adolescents in other social associations decreased the risk of engaging in each category of risky behaviours relative of engaging in no behaviour compared to those who were involved in other social associations.

The demographic variables age, sex, race and province were all significantly associated with adolescent risky behaviour. Compared to the younger adolescents aged 12 to 14, adolescents aged 15 to 17 years old and 18 to 19 years old had a higher risk of engaging in two categories of behaviours and three categories of relative to engaging in no behaviour. With regards to race, Black adolescents had 0.50 times lower risk of engaging in one

category of behaviour whilst their Indian counterparts had 0.57 times less risk of engaging in two categories of behaviour relative to engaging in no behaviour compared to the White adolescents. However, the risk of engaging in two categories of behaviour was the same for adolescents from both the population groups. In terms of engaging in three categories of behaviours, Black adolescents were 0.43 time less likely of engaging in them and Indian adolescents were 0.26 times less likely of engaging in them relative to engaging in no behaviour compared to their White counterparts. The provinces that had increased risk of engaging in one type of risky behaviour were Free State and North West. Western Cape adolescents had 1.47 times higher risks of engaging in two types of behaviour relative to engaging in no behaviour compared to adolescents in Gauteng.

In terms of socio-economic variables, adolescents who were in families where none of the family members were recipients of social grants had a 0.71 times lower risk of engaging in one category of behaviour, 0.59 times lower risk of engaging in two categories of behaviours relative to engaging in no behaviour. This is in comparison to adolescents who had at least one family member that received a social grant. Education was a very important factor of adolescent risky behaviour. The risk of engaging in risky behaviour for adolescents in grade 9 to 12 increased from 2.27 times for adolescents who engaged in two categories of behaviours to 4.7 times higher for adolescents who engaged in three types of behaviours relative to engaging in no behaviour compared to those with an education level below grade 8. Rural adolescents had lower risks of engaging in the different categories of risky behaviours relative to engaging in no behaviour compared to adolescent who resided in urban areas.

The attitudes variables that were significantly associated with risky behaviours were alcohol gives good image, smoking gives good image and should wait for sex for marriage. When adolescents believed that alcohol does not give one a good image, there was 0.19 times less risk of engaging in two categories of behaviours and 0.09 less risk of engaging in three categories of behaviours relative to engaging in no behaviour compared to those who believed that alcohol gives one a good image. Adolescents who did not believe that one should wait for marriage before having sex had a 1.68 times higher risk of engaging in two categories of behaviours and 4.68 times higher risk of engaging in three categories of

behaviours relative to engaging in no behaviour compared to those who believed that they did have to wait for marriage for sex.

4.2.5. Adjusted multinomial logistic regression model results on the number of the categories of risky behaviour

Table 4.9: Multivariate multinomial logistic model results of the determinants of the number of categories of risky behaviours among adolescents in South Africa and the relationship between social association membership and the number of of categories of risky behaviour, producing relative risk ratios, 2008.

		1 Category of Behaviour		2 Categories of Behaviours		3 Categories of Behaviours	
Model Number	**Variables**	**Relative risk ratio**	**Confidence Interval**	**Relative risk ratio**	**Confidence Interval**	**Relative risk ratio**	**Confidence Interval**
One	***Social Association Membership***						
	Yes	RC		RC		RC	
	No	0.78*	0.63;0.96	0.57**	0.44;0.73	0.70*	0.50;0.99
	Age						
	12 to 14	RC		RC		RC	
	15 to 17	1.21	0.90;1.62	3.62**	2.47;5.30	5.57**	2.32;13.34
	18 to 19	1.31	0.91;1.89	6.34**	4.05;9.92	22.56**	9.12;55.82
	Race						
	White	RC		RC		RC	
	Black	0.57**	0.38;0.87	0.28**	0.18;0.43	0.53*	0.29;0.96
	Indian	0.48**	0.28;0.81	0.15**	0.08;0.28	0.13**	0.05;0.36
	Coloured	0.92	0.56;1.50	0.92	0.55;1.53	1.00	0.50;2.01
	Sex						
	Male	RC		RC		RC	
	Female	1.33**	1.09;1.63	1.11	0.88;1.41	0.61**	0.43;0.87
	Province						
	Gauteng	RC		RC		RC	
	Limpopo	0.16**	0.10;0.25	0.01**	0.00;03	0.00	0
	Free State	2.08**	1.38;3.15	0.54*	0.33;0.92	0.44*	0.21;0.92
	Mpumalanga	1.50	0.94;2.40	1.66*	1.00;2.77	2.24*	1.14;4.39
	North West	2.90**	1.84;4.57	1.26	0.75;2.11	1.62	0.84;3.12
	Eastern Cape	1.52*	1.02;2.25	0.85	0.54;1.33	1.55	0.86;2.78
	Northern Cape	1.42	0.90;2.25	0.33**	0.18;0.61	0.41*	0.17;0.98
	Kwazulu-Natal	0.95	0.67;1.35	1.00	0.67;1.47	1.49	0.86;2.59
	Western Cape	0.92	0.61;1.39	1.13	0.73;1.73	0.99	0.54;1.80
	Social Grant						

		1 Category of Behaviour		2 Categories of Behaviours		3 Categories of Behaviours	
Model Number	**Variables**	**Relative risk ratio**	**Confidence Interval**	**Relative risk ratio**	**Confidence Interval**	**Relative risk ratio**	**Confidence Interval**
	Status						
	Yes	RC		RC		RC	
	No	1.17	0.95;1.45	0.93	0.72;1.19	0.89	0.63;2.26
	Education						
	None to grade 8	RC		RC		RC	
	Grade 9 to 12	1.31*	1.00;1.73	1.50**	1.09;2.06	2.03**	1.23;3.52
	Residence						
	Urban	RC		RC		RC	
	Rural	0.58**	0.46;0.75	0.47**	0.35;0.64	0.36**	0.23;0.56
	Family violence						
	Yes	RC		RC		RC	
	No	1.49	0.66;3.37	0.99	0.39;2.47	0.43	0.13;1.36
	Goals for the future						
	Yes	RC		RC		RC	
	No	0.68	0.24;1.89	1.38	0.50;3.81	2.14	0.62;7.36
	Alcohol gives good image						
	Yes	RC		RC		RC	
	No	0.68	0.35;1.29	0.31**	0.16;0.58	0.22**	0.11;0.46
	Smoking gives good image						
	Yes	RC		RC		RC	
	No	0.80	0.45;1.41	0.55*	0.30;1.01	0.50*	0.25;1.00
	Should wait for marriage for sex						
	Yes	RC		RC		RC	
	No	0.75*	0.58;0.97	1.46**	1.11;1.93	3.39**	2.39;4.0
Two	***Religious group***						
	Yes	RC		RC		RC	
	No	1.34**	1.11;1.62	1.60**	1.30;1.97	2.53**	1.82;3.50
	Sports						
	Yes	RC		RC		RC	
	No	0.82*	0.69;0.98	0.68**	0.56;0.83	0.88	0.66;1.17
	Drama						
	Yes	RC		RC		RC	
	No	0.71*	0.51;0.98	0.84	0.59;1.12	1.08	0.62;1.86
	Choir						

		1 Category of Behaviour		2 Categories of Behaviours		3 Categories of Behaviours	
Model Number	**Variables**	**Relative risk ratio**	**Confidence Interval**	**Relative risk ratio**	**Confidence Interval**	**Relative risk ratio**	**Confidence Interval**
	Yes	RC		RC		RC	
	No	0.80	0.63;1.01	0.86	0.66;1.12	0.74	0.51;1.07
	Other Social Associations						
	Yes	RC		RC		RC	
	No	0.41**	0.27;0.63	0.33**	0.21;0.52	0.25	0.15;0.44

*RC=Reference Category, Test was run at at 95% significance level, *=p<0.05 **=p<0.01*

Table 4.9 illustrates the results from the two adjusted multinomial logistic regression models. Model one contained adolescent risky behaviour with all the control variables (demographic, socioeconomic, family exposure and attitudes variables). Model two contained adolescent risky behaviour and the non-indexed social association variables.

In the first model, the following variables were significantly associated with adolescent risky behaviour; social association membership, age, race, sex, province, education, residence, alcohol gives good image, smoking gives good image and should wait for marriage for sex.

In the second model, adolescents who were not members of social associations had 0.78 times, 0.56 times and 0.70 times decreased risk of engaging in one category of behaviour, two categories of behaviours and three categories behaviours respectively. This is relative to engaging in no behaviour in comparison to adolescents who were members of social associations.

In terms of the age, age was only significantly associated with risky behaviours when the adolescents engaged in two and three categories of behaviour relative to when they did not engage in any behaviour. Adolescents aged 15 to 17 years old had higher risks of engaging in two categories (3.62 times risk) and three categories (5.57 times risk) of behaviours relative to engaging in no behaviour. Adolescents aged 18 to 19 years old had even higher risk of engaging in two categories (6.34 times risk) and three categories (22.56 times risk) of behaviours relative to engaging in no behaviour. Black and Indian adolescents were significantly associated with risky behaviours and they had less risks of engaging in all the categories of risky behaviours compared to White adolescents relative to engaging in no behaviour.

In comparison to male adolescents, female adolescents were 1.33 times more likely to engage in one category of behaviour and 0.62 times less likely to engage in three categories of behaviours relative to engaging in no behaviours.

Provinces that had low rates of risky behaviours also had lower risks of engaging in risky behaviour and those that had higher rates had higher risks of engaging in risky behaviour. Adolescents in the Limpopo province had 0.16 less risk of engaging in one category of behaviour relative to engaging in no behaviour compared to adolescents in Gauteng. In the

Free State province, adolescents had 2.08 times higher risk of engaging in one category of behaviour and 0.44 times lower risk of engaging in all three categories of risk relative to engaging in no behaviour compared to adolescents in Gauteng. The risk of engaging in one category of behaviour relative to engaging in no behaviour was 2.90 times higher for adolescents in the North West and 1.52 times higher for adolescents in the Eastern Cape compared to adolescents in Gauteng.

Education and residence were the only two socio-economic variables that were significantly associated with risky behaviour. The risk of engaging in one, two and three categories of behaviours were lower for rural adolescents compared to urban adolescents relative to engaging in no behaviour. Adolescents with the higher level of education, grade 9 to 12, compared to those with lower levels of education were 1.31 times more likely to engage in one category of behaviour, 1.50 time more likely to engage in two categories of behaviours and 2.03 time more likely to engage in three types of behaviours relative to engaging in no behaviour.

The third model contained adolescent risky behaviour with the following non-indexed main independent variables; religious group, sports, drama, choir and other social associations. Religious group was significantly associated with engaging in one, two and three categories of behaviours. The risk of engaging in risky behaviours was highest when the adolescent was not a member of a religious group as opposed to all the other social associations that were significantly associated with risky behaviours. Adolescents who were not members of religious groups had 1.34 times higher risk of engaging in one category of behaviour, 1.60 times higher risk of engaging in two categories of behaviours and 2.53 times higher risk of engaging in three categories of behaviours. Participating in sports was significantly associated with engaging in one and two categories of behaviours. Adolescents who did not participate in sports, compared to those who did, were 0.82 times less likely to engaging in one category of behaviour and 0.68 times less likely of engaging in two categories of behaviours relative to them engaging in no behaviour. Adolescents who did not participate in drama compared to those who did had 0.71 times lower risk of engaging in one category of behaviour relative to engaging in no behaviour. Participating in other social associations was significantly associated with engaging in one, two and three categories of behaviours.

Adolescents who were not members of other social associations, compared to those who were members, had 0.41 times less risk of engaging in one category of behaviour, 0.33 times less risk of engaging in two categories of behaviour and 0.25 times less risk of engaging in three categories behaviours relative to engaging in no behaviour.

5. Chapter Five: Discussion

This section presents the discussion which addresses the levels of social associations, levels of risky behaviour, determinants of risky behaviours and the relationship between social association membership and risky behaviour. These four items are discussed in light of the findings of previous studies in this research area, the theory underpinning the study which is the theory of social control and the proposed hypothesis.

Levels of Social Association Membership

The finding that the rate of social association membership was highest for sports group and religious group membership was expected. Sports groups and religious groups are easily accessible making it so much more convenient to be involved in them. Sports groups can be joined by playing with friends in the same neighborhood at the local community centre or on the street with minimal logistics especially those related to financial costs. In Table 4.3 male adolescents had a higher rate of being involved in sports groups (614 per 1000 male adolescents and 383 per 1000 female adolescents) and female adolescents had a higher rate of engaging in drama (115 per 1000 female's adolescents and 81 per 100 male adolescents), choir (239 per 1000 female adolescents and 166 per 1000 male adolescents) and religious groups (374 per 1000 female adolescents and 333 per 1000 male adolescents). This is because males have been found to be more often involved in physical activities than females are (Kinsman et al., 2015). This is supported by studies conducted in South Africa and in the United States which have found that participation in sports tends to be linked to masculinity. Furthermore, a recent study in rural South Africa revealed that inhibitors of participation in sports were that females felt that facilities were better for males than they were for males (Kinsman et al., 2015). Because of parents being protective of their daughters parents would rather have their sons rather than their daughters playing sports (Kinsman et al., 2015).

Limpopo province is the most rural province in South Africa (Arenstein, 2002). Adolescents in the Limpopo province were found to have the highest rate of participants in religious groups (765 per 1000 adolescents) and one of the lowest rate for other social association at 0 participants per 100 adolescents. Similarly, to the sports groups, it may be suggested that

religious groups might be the most easily accessible when compared to all the other social associations. Adolescents do not have to pay or purchase any participating materials to be involved in religious groups. Therefore, this may encourage adolescents in the Limpopo province who are probably of the lower classes to be involved in religious groups.

Levels of Adolescent Risky behaviour

The five most common risky behaviours identified in this research as identified in Table 4.1 were; driving without a seatbelt (56%), consuming alcohol (32%), being a passenger in a car with a driver who was under the influence of alcohol (28%), tobacco use (21%) and lack of condom use during sexual intercourse (9%). Evidence from a study conducted by Flisher et al (2006) points to an increase in the level of risky behaviour as 53% of adolescents were found to have travelled in the front seat of a car without a seatbelt and 27% of these adolescents had also been passengers in a car with a driver that was driving under the influence of alcohol. These results present motor vehicle risky behaviours as more easy to engage in than most of the other types of risky behaviours. It is also arguable that adolescents who engaged in these two risky behaviours did so as victims of peer pressure because they were passengers in cars driven by other people (Allen and Brown, 2008).

South Africa has been identified as having one of the highest rates of motor vehicle accidents in the world (Matzopoulos et al., 2004). The World Health Organization in 2007 reported that adolescents have more than five times the risk of fatal accidents compared to drivers above the age of 30. A trend analysis of unnatural causes of death among adolescents reported that the rates of transport mortality were consistently higher for male adolescents when compared to female adolescents from 2002 to 2009 (De Wet et al., 2014). More recently, Statistics South Africa has reported that the third most common cause of non-natural deaths amongst South African youth was motor vehicle related deaths which accounted for 12% of non-natural deaths (Statistics South Africa, 2014).

The levels of consumption of alcohol (32%) and utilization of tobacco (21%) were closely linked to those that were reported by Onya (2012) in a South African study that reported that the use of alcohol was 22% and the use of tobacco was 10%. It is evident that there was a decrease in condom use among adolescents from 1999 to 2009 with a reported 19%

of adolescent condom users in South Africa. This may be seen as a reflection of the findings of previous research in that; condoms are unnecessary in steady relationships, they represent mistrust between partners and collecting them in public areas is embarrassing (Hendriksen et al., 2007; Miller et al., 2014; Sayles et al., 2006; Zwane et al., 2004).

Research has reported that there are a greater number of rural residing adolescents who engage in risky behaviours than urban residing adolescents (Atav and Spencer, 2002). In contrast to this, the current study has found that the rate of engaging in at least one type of risky behaviour is higher for urban adolescents and lower for rural adolescents. This might point to the kind of exposure and social associations that urban adolescents may have access and exposure to which may increase their opportunities of engaging in risky behaviours.

The high rates of risky behaviour in the Western Cape support the findings of researchers who have reported similar results in the Western Cape particularly among the Coloured adolescents (Amoateng et al., 2006; Brook et al., 2005). Because of the socio-economic fragmentation of the Western Cape, the Cape flats in the province have a long history of gangsterism, drug trading and sex for drug trading as a result of poverty and unemployment (Du Toit, 2014). This is at the center of the poverty and unemployment experienced by many of the people living in the Cape (Dinkelman et al., 2008).

The Limpopo province has been found to have one of the highest number of adolescent's girls who have been pregnant. In 2003, 17% of girls in Limpopo had been pregnant and this was the highest number in South Africa (Ramulumo and Pitsoe, 2013). The Limpopo province had the third highest number of teenage pregnancies in 2013 with 13, 000 adolescents reported to have been pregnant (Hermann, 2015). In this light, it was unexpected that adolescents in the Limpopo province would have the lowest rates of engaging in risky sexual behaviour when compared to adolescents in the other eight provinces.

Demographic determinants of risky behaviours

Age

Age is one of the most influential demographic determinants of risky behaviours globally. This study found that the older adolescents were more likely to engage risky behaviour and that the odds of engaging in risky behaviour increased with the increase in the age group. For example, the odds of engaging in risky sexual behaviours were 13.09 for adolescents aged 15 to 17, the odds of adolescents 18 to 19 engaging in risky behaviour was 50.96. A similar pattern of results was observed with the risky substances behaviours and the other risky behaviours. These results are similar to those of a studies conducted by Mashita et al 2011 and Sinha et al 2007 which both found that that risky behaviour increase with age and that the older adolescents more commonly engage in risky behaviours than the younger adolescents. This might point to the association that older adolescents might have with adults. For example, because behaviours are learnt and adopted, adolescents who are associated with adults might adopt the risky behaviours that they might pick up from adults either in the family or in the community environments (McGlinchey and Harvey, 2014; Mashita et al., 2011; Milkman and Wanberg, 2012). This is particularly with reference to the motor vehicle and substance use behaviours which can easily be done in the presence of adolescents.

Sex

Research has identified male adolescents as the greatest risk-takers of any given population (Amoateng et al., 2006; Brook et al., 2005; Maharaj and Cleland, 2005; Sayles et al., 2006). The findings of this study reveal that although females had increased relative risks of engaging one and two categories of risky behaviour, they had decreased odds of engaging in three categories of risky behaviour. Thus showing us that females were not likely to engage in the maximum number of categories of risky behaviour.

With regards to engaging in the different categories of risky behaviour, female adolescents had lower odds of engaging in both risky sexual and risky substance use behaviour, and they had higher odds of engaging in the other risky behaviours. These findings are not unexpected because the other risky behaviours include behaviours such as attempted

suicides, driving without a seatbelt and being a passenger in a car driven by someone who was under the influence of alcohol amongst others. According to Shilubane (2013), suicide related behaviours were a very common phenomenon among female adolescents which might explain why female adolescents were more likely to engage in them. Suicide is often linked to depression and stress which society has stigmatized as to only be experienced by females and males having to be strong enough to not show their emotions (Boysen et al., 2014).

However, another study in Canada found that suicide rates were three times more higher for males than they were for females (Navaneelan, 2012). The general notion around suicide is that it is common amongst females and thus it is referred to as the "silent killer" for males because of the lack of public awareness around it and there is very limited research that has been done on it (Bilsker and White, 2011). Suicide has often been linked to depression and suicide amongst males have been stigmatized (Oliffe et al., 2016). This may suggest that some males might not be comfortable telling the truth about having attempted suicide and thus there is possibility of undercounting on the suicide numbers among males.

Race

Black adolescents in this study were found to have higher odds of engaging in risky sexual behaviours and lower odds of engaging in the risky substance use behaviours and other risky behaviours when compared to the White adolescents. Such finding are not surprising because in South Africa teenage pregnancy has been found to be highest among black adolescents (Swartz, 2009). Because of the lack of communication on sex education that Black adolescents in particular have with their parents, Black adolescents might be more likely to be involved in sexual activities (Coetzee et al., 2014). Additionally, there could have been an issue of reporting bias which may have resulted in the above findings.

Province

The odds of engaging in risky sexual behaviour were lower in the Limpopo and Free State provinces. This case was particularly interesting for the Limpopo province because the province was reported to have had the third highest of number of teenage pregnancies in

2013 however results reveal that there were decreased odds of engaging in risky sexual behaviour (Sibanyoni, 2013). Although there is a possibility that the adolescents considered their pregnancies intentional and not a result of risky behaviour, it is important to note that research has shown that there is no link between desire to child support grant and adolescent pregnancy (Makiwane et al., 2006; Rosenberg et al., 2015). At the same time there is a possibility that adolescents in Limpopo were pregnant because they were unaware of the emergency contraception as per the findings of a study in Limpopo on knowledge of contraception (Ramathuba et al., 2012). Furthermore, because the issues of risky behaviour is sensitive it may lead to underreporting in surveys because of the fear of speaking to adults about sexual behaviour. For the Limpopo province, this would make sense because as we noted earlier, the province with the highest rate of membership in religious groups was Limpopo. Therefore, adolescents in Limpopo might have conservative views regarding sexual behaviour because of their religious associations.

Socio-economic determinants of risky behaviour

Residence

Rural adolescents had a decreased likelihood of engaging in all categories and numbers of categories of risky behaviour. These results confirm the findings of studies conducted by Atav and Spencer (2002). Therefore, it can be concluded that it is indeed true adolescents in rural areas are less likely to engage in risky behaviour when compared to those in urban areas.

Education

Adolescents in grade 9 to 12 had increased odds of engaging in sexual behaviours and decreased odds of engaging in substance use behaviours. The relative risk of these adolescents engaging in risky behaviour also increased with the number of categories of risky behaviours. These findings are a reflection of the findings of previous literature and the findings on age in study which suggested that the older adolescents were more likely to engage in risky behaviours than the younger adolescents (Mashita et al., 2011; Sinha et al., 2007). Adolescents in grade 9 to 12 are most likely to be in the age group 15 to 19 which is why the current results are similar to the results on the age variable. Life skills and Life

orientation have been established with the aim of reducing and discouraging risky and harmful behaviours (Maluleke, 2010). However, the current study suggests that the there is a possibility that the course content in these subjects as the adolescents get to higher grades might make the adolescents seek to explore the risky behaviour they have been advised to avoid.

Attitudinal determinants of risky behaviour

Life goals

The perceptions and attitudes that adolescents have towards risky behaviour play an imperative role on whether they decide to engage in risky behaviour or not (Harris et al., 2002; Sayles et al., 2006). One major perception that is known to determine risky behaviour is life goals. This study has found that not having life goals increased the odds of engaging in risky sexual behaviours which confirms to a certain extent the findings of Sayles et al (2006) who reported that adolescents who had life goals had decreased odds of engaging in risky behaviour. It would be expected that when adolescents have got future goals that they want to achieve, they might try as much as possible to avoid risky behaviour that could derail them from achieving these goals. Additionally, the findings also reflect Harris et al (2002) hypothesis on adolescents having a "nothing to lose" attitude. This shows us that if adolescents do not have life goals, they will find it very easy to engage in risky behaviour because they have "nothing to lose".

Perception towards sex

Adolescents who believed that they did not need to wait for marriage in order for them to have sex had increased odds of engaging in risky sexual behaviours and risky substance use behaviours. These same adolescents also had increased odds of engaging in two and three categories of risky behaviour. These findings speak to two things; firstly, that it may be a possible reason that adolescents who did not believe that they needed to wait for marriage in order to have sex were engaging in sexual behaviours because they believed that they were mature enough to do so. This is suggested because of the findings of Zwane et al (2004) who found that adolescents engaged in risky sexual behaviours because they felt that they were mature enough. Zwane et al (2004) also found that adolescents engaged in risky

behaviours for economic reasons, for example female adolescents reported having a "sugar daddy" alongside a steady boyfriend. Secondly, the findings can be linked to the fact that previous research has found that when adolescents engage in one risky behaviour it increases the likelihood of engaging in additional risky behaviours (Schantz, 2012).

Perceptions towards alcohol and smoking

The perception that alcohol and smoking does not give one a good image decreased the odds of engaging in two and three categories of risky behaviour. These findings give a good indication of perception playing an important role on choice to engage in risky behaviour. Furthermore, these findings illustrate that if adolescents believe that something is good they are likely to do it and if not then they are unlikely to do it (Alhyas et al., 2015).

Family Violence

Exposure to family violence in South Africa has been found to play an important role in the behavioural patterns of adolescents and young adults. Research has shown that adolescents who were exposed to family violence were more likely to engage in risky behaviours (Holborn and Eddy, 2011). The current findings are somewhat linked to previous findings as they reveal that not being exposed to family violence decreased the odds of engaging in "other" risky behaviours. The other risky behaviours also included carrying weapons to school and attempted suicide which may be linked to engaging in violence (Atav and Spencer, 2002; Mncube and Steinmann, 2014; Muula et al., 2008).

Social association membership and risky behaviour

Regarding the relationship between social association membership and risky behaviour it was found that there was a statistically significant relationship with the following social associations; religious groups, sports groups, drama groups and other social associations.

The indexed social association membership variable was also significantly associated with all three numbers of categories of risky behaviour. When adolescents were not members of social associations they had decreased odds of engaging in one category, two categories and three categories of risky behaviour. This therefore suggests that if adolescents were members of social associations they might have been more likely to engage in risky

behaviours. The results also point to the main argument of the research which is that social association membership increases the likelihood of engaging in risky behaviour. Research has shown that social associations can play an important role in keeping adolescents occupied enough that they can avoid engaging in risky behaviours (Kariyana et al., 2012).

Adolescents who were not members of religious groups had increased odds of engaging in one, two and three categories of risky behaviours. These results are linked to the findings of studies which have reported that being involved in religious affiliated activities reduces involvement in risky behaviours (Mncube and Steinmann, 2014; Sinha et al., 2007; Tibbits et al., 2009). This illustrates that religious groups might possibly serve as protective factors towards risky behaviour. This is because the results show that the adolescents are more likely to engage in risky behaviours when they were not members of religious groups compared to when they were members. This points to how the different religious groups have elements of a moral value system by prohibiting certain behaviours of which most of them might be considered risky behaviours (Mojahed, 2014).

Adolescents who were not members of sports groups had decreased odds of engaging in one and two categories of risky behaviour. Therefore, being a member of a sports group may increase the likelihood of engaging in risky behaviour. This is in light of previous research which has shown that individuals involved in sports groups are often commonly involved in risky substance use behaviours (Kwan et al., 2014). This relationship might be explained by the role of peers in risky behaviour. Studies have shown that when adolescents have strong ties with the peers they have a greater probability of engaging in risky behaviour (Amoateng et al., 2006; Jackson et al., 2012; Miller et al., 2014). Through sports groups and other social associations, adolescents often build relationships of trust with their peers (Wilson, 2009). Although it might not be the initial plan, it may consequently make it easier for adolescents to engage in risky behaviours within their peer groups built through sports groups.

However, in contrast to this (although not statistically significant), the findings of this research also show that not being a member of a sports group increases the likelihood of engaging in risky substance use behaviour. This might be explained by the difference in the levels of commitment to the particular sports groups and the requirements of the sport.

Adolescents who play sports to compete professionally might avoid using substances (Merkel, 2013). This may be linked to health reasons and in order to meet the legal requirements of the particular sport that they are involved in. Adolescents involved in sports groups for mere social reasons might be more likely to engage in risky substance use behaviour (Lisha and Sussman, 2010). This may be because they probably do not see any future implications of using drugs and other substances. However, this explanation needs to be taken with caution as nowhere in the data does it specify whether adolescents were engaged in the social associations on a competitive basis or just for leisure and socialising.

Not being a member of a drama group increased the odds of engaging in risky sexual behaviours. These results do not come as a surprise because in South Africa, many initiatives related to arts and culture with a particular focus on drama have been used to educate young people on risky sexual and substance use behaviours. A study on young people who participate in drama reported that because drama is a multisensory mode of learning that creates personal connection to the material (Schiller, 2008). Therefore, drama can have an impact on the adolescents' cognitive, social, emotional and physical development which has positive influence on their everyday life (Schiller, 2008). Thus being involved in drama groups can also play an important role in the reduction of involvement in risky sexual behaviours.

Based on the discussion above the research confirms that social associations have an impact on the likelihood of engaging in risky behaviour. However, depending on the type of social association, the impact can result in either positive or negative behaviours. In addition, the above discussion allows us to confirm that the conceptual framework proposed is applicable. The background variables lead to social associations, life goals and perceptions towards to risky and finally to risky behaviour. This therefore suggests that there is no one sole factor that results in risky behaviours, however some factors will have a stronger impact than others.

6. Chapter 6: Conclusion, Recommendations and Limitations

6.1. Conclusions

This research found that adolescents were more commonly engaged in driving without a seatbelt, using alcohol, being a passenger in a car driven by someone who was under the influence of alcohol, tobacco use and lack of condom use. Driving without a seatbelt can result in serious injuries during a motor vehicle accident which can potentially lead to mortality (Van Hoving et al., 2014). Using alcohol has long term negative health implications which can result in mortality and furthermore, abusing alcohol can also result in risky sexual behaviours which may lead to HIV/STD infections and subsequently mortality (Bolland et al., 2016; Reddy et al., 2013). Being a passenger in a car that was driven by someone who was under the influence of alcohol puts a risk on both the driver and the passenger of experiencing injuries and mortality (Flisher et al., 2006).

It is evident from this research that adolescent risky behaviours are very crucial particularly because they result in negative health outcomes and short and long term experiences of mortality. The demographic dividend which presents an opportunity for young people to be the economic drivers of South Africa will require the survival of the current young population as this population is the future of the country (Pool, 2007; UNESCO, 2013).

Regarding examining the relationship between social association membership and risky behaviours, results from the study suggested that social association membership may increase the likelihood of engaging in risky behaviour. Furthermore, regarding religious groups, not being a member of a religious group increased the likelihood of engaging in risky behaviour. Therefore, it is imperative that when policies on social associations are implemented, it is taken into consideration that only drama and religious associations have been identified as protective factors to risky behaviours. All the other social associations have the potential to become platforms for engaging in risky behaviour. This is in contrast to studies in the United states that have revealed that social associations such as sports groups are preventative strategies to risky behaviour (Carmichael, 2008).

Additionally, because adolescents were commonly involved in sports and religious groups it is important that policy makers and planners target interventions within these two

particular social associations. This would ensure that these types of social associations are places where adolescents gain positive social capital so that they are more likely to make positive than negative life choices particularly with reference to risky behaviour.

6.2. Recommendations

Further research in this area should be longitudinal following adolescents from when they transition from childhood to adolescence to becoming adults. A longitudinal study would enable a test of causality between social association and risky behaviour and it would also permit a trend analysis of this relationship. This would give a better understanding of the pattern in this relationship and how it changes over time and age. Furthermore, it would allow further exploration of peer influences in engaging behaviours on identifying whether it's the long standing peers or the new peers that are met in the social associations that adolescents engage in risky behaviour with.

The data used in this study did not specify whether the social associations that adolescents engaged in were within the school or outside school. It is therefore suggested that research look at whether school-based social associations or outside school social associations are more likely to result in adolescents engaging in risky behaviours. In a country like South Africa where there is a deficiency in the data on social association membership, this would be a means of testing if the polices encouraging social associations within schools are valid. Therefore, more accurate policies would be implemented if necessary.

The world is rapidly becoming digitized and adolescents are at the forefront of the use of social media and technology for leisure activities. Through social media adolescents gain access to online social groups which may result in either positive or negative behavioural outcomes depend on the exposure they get. Research needs to also evaluate whether social media networks are becoming the new platforms for engaging in risky behaviours. Because these kinds of spaces are easily accessible even in the home, parents might not even know that adolescents are engaging with people or in online activities that might not result in positive outcomes. Thus it would be of significant importance to research this area so as to identify new forms of social associations that can influence risky behaviour.

The results of this study found that when adolescents were not members of sports groups they were less likely to engage in risky behaviours. The National Youth Policy 2015 to 2020 proposes that in order to combat risky substance use, physical education in school's compulsory and communities equipped with gyms and other sports and recreational facilities (The Presidency, 2015). The policy fails to specify how this intervention is expected to result in adolescents and youth not abusing substances. Based on the findings of the current study and current policy in place, it is suggested that adolescents spend more time in supervised sports groups activities within the school environment where they will have less of an opportunity to engage in risky behaviour.

6.3. Limitations

6.3.1. Underreporting of risky behaviours

The issue of risky behaviours is quite sensitive, there is a great possibility that adolescents may have been scared or reluctant to tell the truth about the behaviours that they engage in. Therefore, they may have been issues of underreporting or misreporting of risky behaviours.

6.3.2. Social association membership

The data did not specify whether the adolescents engaged in the social association and then the risky behaviour or vice versa. It was also not possible to determine the duration of social association membership or how active the adolescent was in the social association.

6.3.3. Limited number of attitude variables

Variables on the attitude towards risky behaviour did not meet all the different types of risky behaviour that were studied in this research. The only variables that were available were perceptions related life goals, sexual behaviours and substance use behaviour and they were measures against sexual behaviours, motor vehicle behaviours and suicide behaviours. The attitudes variables in the study were used with the assumption that if adolescents perceive one risky behaviour as good they would perceive all the others as good too. However, it would be more beneficial to measure the perception for each specific risky behaviour.

6.3.4. Cross-sectional data

The data for this study was cross-sectional. Thus meaning that the research was limited to measuring association and not causal effect. This means that the analysis was done only at one point in time and a follow up could not be done to examine trends over time.

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Appendix One

Table 1: Rates of engaging in adolescent risky behaviour in South Africa, 2008

Sexual Behaviours	
Behaviour	**Rate per 1000**
No condom Use	91
Multiple sexual partners	85
Substance Use	
Behaviour	**Rate per 1000**
Drug use	59
Tobacco Use	208
Alcohol use	323
Other Behaviours	
Behaviour	**Rate per 1000**
Weapons at school	10
Driving without seatbelt	536
Driving under the influence of alcohol	29
Passenger with driver under the influence of alcohol	285
Attempted Suicide	40

Table 2: Rate of adolescent social association membership by sex, South Africa, 2008

Social Association			
	Male	**Female**	**Total**
Drama	**Rate per 1000**	**Rate per 1000**	**Rate per 1000**
Yes	81	115	96
No	918	885	903
Choir			
Yes	166	239	198
No	833	760	800
Religious groups			
Yes	333	374	351
No	667	626	649

Yes	614	383	513
No	385	617	487
Other			
Yes	75	81	78
No	921	913	917