

**THE INFLUENCE OF RELIGIOUSNESS ON HEALTH RISK BEHAVIOURS
AMONG FIRST ENTERING UNIVERSITY STUDENTS**

by

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MINI-DISSERTATION

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DECLARATION

I, HAPPY SURPRISE PULE declare that this mini-dissertation hereby submitted to the University of Limpopo for the degree of Master of Arts in Clinical Psychology, has not been previously submitted by me for a degree at this or any other university, that it is my own work in design and in execution, and that all materials used have been indicated and acknowledged by means of complete references.

.....

Signature

.....

Date

DEDICATION

This work is dedicated to my parents (Nomvula & Johannes Pule).

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I would like to convey my appreciation to God who makes all things possible and without whom I could not have embarked upon this passage. Thank you, Lord, for all the strength, wisdom and endurance that you have so sufficiently given to me.

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ABSTRACT

Substantial literature connects religiousness to physical health; however, few studies have explored the influence of religiousness on risk-taking factors among Black first-entering university students. The purpose of this study was to investigate the influence of religiousness on health risk behaviours among a sample of university students (N = 333) from a predominantly Black university in the Limpopo Province, South Africa. The risk behaviours of interest were alcohol consumption, risky sexual behaviours, cigarette smoking, drug use, rates of engagement in physical activity, and patterns of consuming healthy foods daily. The study used a cross-sectional design. Results indicated that intrinsic religiosity was negatively associated with alcohol consumption; risky sexual behaviours, cigarette smoking and drug use, and the effects of gender were present in both relationships. Intrinsic religiosity's association with alcohol consumption and risky sexual behaviours had no gender effect. Nevertheless, there was no direct relationship between diet and physical engagement, although intrinsic religiosity influenced the students' engagement in physical activity only in the context of gender. It is recommended that a three-way design may be more effective in uncovering some of the associations between intrinsic religiosity and risk behaviours such as eating a healthy diet and engaging in physical activity.

Keywords: Health risk behaviours, religiousness.

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CHAPTER ONE

Introduction and Background

1.1 Introduction

Emerging adulthood, considered a new life transition phase, is viewed as a time of exploration and experimentation (Arnett, 2001). This period of intense exploration and change may make individuals particularly susceptible to engaging in high-risk behaviours (Arnett, 1992; Bradley & Wildman, 2002). Existing South African studies show that students use alcohol, tobacco and other drugs, engage in unprotected sex, and have unhealthy dietary habits (Porter, Johnson, & Petrillo, 2009; Peltzer, 2003). Although attempts were made to stem the tide of risk behaviours and the results are evident in some areas (Pettifor et al., 2011; Porter et al., 2009) there are still problems. Students' engagement in health risk behaviours has become increasingly prevalent over the past decade, posing a significant public health problem among college students. As such the search for what can explain or moderate risk behaviours is timely (Sinha, Cnaan, & Gelles, 2007).

Religion has been found to be an important predictive factor for high risk behaviours in young adults (Dunn, 2005; Johnson, Sheets, & Kristeller, 2008; Oleckno & Blacconiere, 1991; Wallace, Brown, Bachman, & Laveist, 2003). Several studies show that there is an association between religious involvement and engagement in physical activity (Bassett, Schneider, & Huntington, 2004; Kim & Sobal, 2004), healthy eating (Hart, Tinker, Bowen, Satia-Abouta, & McLerran, 2004; Kim & Sobal, 2004; Kim, Sobal, & Wethington, 2003; Oleckno & Blacconeire, 1991), tobacco use (Adelekan, Abiodun, Imouokhome-Obayan, Oni, & Ogunremi, 1993; Kim et al., 2003; Oleckno, & Blacconeire, 1991), safe driving and risk-taking (Hoffman, 2000; Miller & Hoffman, 1995; Oleckno & Blacconeire, 1991). This study investigates the relationship between religiousness and health risk behaviours among South African first-entering university students, since not many studies of this nature have been conducted in this particular population.

1.2 **Statement of the Problem**

Research on the prevalence of risk-related behaviours in young adults has pointed to the need to identify protective factors (Zaleski, & Schiaffino, 2000) that prevents repeated exposure to risk (Campbell & Stewart, 1992). For instance, many late adolescents continue to engage in anonymous sex, sex without a condom, and sex with multiple partners; behaviours that have the potential to compound their health status (Fisher, & Fisher 1993; Jemmott & Jones, 1993). At a 17.3% prevalence rate among 15-49 year olds, and an estimated 5.6 million HIV infected individuals in the population, rates of HIV infection in South Africa are still the highest in the world (Gray, Vawda, & Jack, 2013).

Although some studies were conducted among South African students on risk behaviours (Reddy et al., 2003; Shisana et al., 2013), there are not many at university level, especially in recent times. Patterns of health risk behaviour change constantly and therefore it is timely to conduct a study of this nature. Besides, not many studies have focused on the association between religiousness and health risks in the population of South African students. Being involved in religion in any form is important since religious groups themselves are important as social reference groups (Bock, Beeghle, & Mixon, 1983). These groups help to shape and stabilize the identities of its members and help to differentiate them from “out-groups” (Cochran, & Beeghley, 1991). The importance of religious groups as social referent may be challenged in the context of a university, where there are many other groups competing for the attention of the first entering student (Zaleski, & Schiaffino, 2000)

1.3 **Aim of the Study**

To investigate the role of religiousness on health risk behaviours among first entering students.

1.4 Objectives of the Study

- 1.4.1 To examine the association between religiousness and health risk behaviours among first entering students.
- 1.4.2 To determine if gender mediates the relationship between religiousness and health risk behaviours.

1.5 Hypotheses

- 1.5.1 High levels of intrinsic religiosity will be associated with low health risk behaviours.
- 1.5.2 The effect of intrinsic religiosity on health risk behaviours will be more among female students.

1.6 Significance of the Study

There is substantial international literature connecting religion to physical health (Hill, & Pargament, 2003); however, there are not many studies investigating the influence of religiousness on risk-taking factors, especially among first-entering university students in South Africa. This study adds to the literature on the role of religiousness and health risk behaviour. The findings of this study can potentially be used to design effective health risk intervention and prevention programmes among students.

1.7 Division of the Mini-dissertation

The mini-dissertation will be divided into five chapters, as follows:

Chapter 1 (Introduction and background):

In this chapter, aside from introducing the topic, background to the study, together with the statement of the problem, is provided.

Chapter 2 (Literature review):

The literature review covers studies that have been conducted in all the health risk behaviours included in the study.

Chapter 3 (Research methodology):

When describing the research methodology the researcher is providing the reader with a road-map of how the actual study is going to unfold, what variables and in which manner are they going to be assessed. It is in this chapter that the data gathering instruments will be presented and their psychometric properties described.

Chapter 4 (Results):

The results of the study are presented in this chapter.

Chapter 5 (Discussion):

The results are discussed in this chapter. This is done in the context of existing empirical findings. The researcher seeks to relate the findings to what is already known in this area of research.

The mini-dissertation will also have a separate section of references and appendixes. The latter will contain an ethics clearance certificate from the University of Limpopo.

CHAPTER TWO

Theoretical Concepts and Literature Review

2.1 Introduction

This section covers two aspects, namely, the definition of concepts, the theoretical framework of the study, and literature review. The literature review begins from the premise that university students are exposed to a number of new experiences, some of which may lead to risk-taking behaviour. Parental religious guidance and influence may face strong challenge. Nevertheless, university experience can also serve to strengthen religious beliefs, and expand horizons of spiritual exploration and growth (Jeynes, 2003). Therefore, religiousness will have different consequences depending on whether students have become even more religious, or have begun to question the basis of religion. Interest in this study is on whether religiousness will affect risk-taking behaviour.

2.2 Theoretical perspective

Ellison and Levin (1998) provided a concise yet comprehensive coverage of theoretical perspectives commonly associated with the role of religion in risk behaviour and health. Amongst these theories Ellison and Levin list a perspective grounded in religiosity's linkage and subsequent impact on personal lifestyles and health behaviours. The approach, which can be called a "life stress paradigm to health risk behaviour", takes a practical approach to the establishment of a relationship between religiosity (and spirituality). Religiosity functions as a regulator of conduct, discouraging engagement in health risk behaviour and promoting health enhancing, low-stress behaviour choices (Ellison & Levin, 1998). Thus, an individual who belongs to a religious organization or group, or holds religious beliefs, is likely to benefit indirectly from religious regulation and affiliation since he or she will not be exposed to behaviours that carry health risks (cf. Bridges & Moore, 2002).

The present study does not use a complex design where a multiple variables are simultaneously analysed. Nevertheless, the study follows the philosophy of the life stress paradigm. The impact of holding an intrinsic religiosity orientation is evaluated against a number of health risk behaviours, including alcohol consumption, risky sexual behaviours, cigarette smoking, drugs use, and rate of engagement in physical activity and consumption of healthy foods daily.

2.3 **Operational definition of terms**

2.3.1 *Health risk behaviours*

Behaviours that tend to have negative consequences, including personal injury or death, or other events that may have long term negative impact (Gullone, Moore, Moss, & Boyd, 2000). The well-established National College Health Risk Behaviours Scale (NCHRBS; Centers for Disease Control & Prevention [CDC], 1997) incorporates behaviours such as marijuana use, cigarette smoking, illicit drugs, unhealthy diet, drinking, risky sexual behaviour, and low levels of physical activity and exercise as some of the common risk behaviours among students.

2.3.2 *Religiousness*

Religiousness may be thought of as a belief in God or higher power and practices associated with faith-related institutions. It involves religious identity (religious group affiliation, religious self-identity), behaviour (attendance at religious services or individual religious practices), attitudes (importance of religion), perceptions (religion's negative sanctions against certain behaviours), and practices (adherence to rules and sanctions) (Koenig McCullough, & Larson, 2001). Although religiousness can easily incorporate spirituality, in this study we recognize that religiousness can be defined as a distinctive concept apart from spirituality (Hill & Pargament, 2003; Hill, Burdette, Ellison, & Musick, 2000; Zinnbauer, Pargament, & Scott, 1999).

2.4 The Relationship between Religiousness and Health Risk Behaviours

2.4.1 Introduction

Religiousness is associated with a number of risk-taking behaviours. In this study, the risk-taking behaviours studied include alcohol consumption, risky sexual behaviours, cigarette smoking, drug use, engagement in physical activity and the consumption of a healthy diet. The relationship between religiousness and each of the behaviour will be described immediately hereafter.

2.4.2 Association between Religiousness and Alcohol Consumption

Most studies investigating the link between religiousness and alcohol use find a significant inverse relationship (Dunn, 2005; Johnson, Sheets, & Kristeller, 2008; Oleckno & Blacconiere, 1991; Rostosky, Danner, & Riggle, 2007; Sinha et al., 2007; Wallace, Brown, Bachman, & Laveist, 2003). Similarly, religiousness is inversely related to health (Koenig et al., 2001). Religiousness may impact alcohol use through the development of negative attitudes about alcohol use (Johnson, Sheets, & Kristeller, 2008).

In adolescents, higher levels of religiosity may protect against underage drinking. Park, Bauer and Oescher (2001) found that religiosity impacted self-control and tolerance for deviance which, in turn, impacted alcohol use attitudes and finally impacted substance use. Krause (1991) reported that significantly higher rates of abstinence among women and elderly African Americans were primarily due to the indirect effects of religiosity. In practice religious affiliation, attending religious events and activities related to religiosity are considered important as factors associated to low rates of alcohol consumption in young adults (Koenig et al., 2001).

Park et al. (2001) found that participation in religious activities predicted less alcohol use for Hispanic students, while perceiving oneself as religious

predicted less alcohol use for other racial/ethnic groups. In either case, it seems endorsing participation or association with anything religious tended to reduce the amount of alcohol consumed. Chen, Dormitzer, Bejaro and Anthony (2004) identified a significant drop in crude odds of initiation of alcohol consumption to higher levels of religious practice (e.g., time allotted for praying and going to church) and religious devotion (e.g., the importance given to attendance at Sunday religious services) among adolescents from Central America (Chen et al., 2004).

2.4.3 The Influence of Religiousness on Risky Sexual Behaviours

Available research suggests that adolescents who are more religious tend to delay sexual activity (Kirby, 2002; Rostosky, Wilcox, Corner Wright, & Randall, 2004). For male and female teens, frequent attendance at religious services and religious youth activities, higher levels of importance of religion in daily life and religious feelings and, increased adherence to religious teachings were all significantly related to decreased rates of voluntary sexual debut (Lefkowitz, Gillen, Shearer, & Boone, 2004). Meier (2003) who conducted a study that examine the bi-directional associations between religiosity and first sexual intercourse over a 1-year period using data from the National Longitudinal Survey of Adolescent Health, found that higher religiosity reduces the probability of having an early sexual initiation for both male and female adolescents, with the effect being larger among females (Meier, 2003).

A study examining the role of religiousness as a protective or risk factor for sexual initiation and contraceptive behaviour among a sample of predominantly African-American female adolescents found that those with higher religiosity were less likely to have ever had sex (Melanie et al., 2010). DuRant and Sanders (1994) surveyed a national random sample of 1512 unmarried sexually active females and found an inverse relationship between coital frequency and religiosity. In these studies, however, religiosity was solely measured by frequency of church attendance. Furthermore, there was no determination of the religiosity among adolescents who were not sexually

active and whether religiosity was a factor that helped them to remain that way.

2.4.4 The Influence of Religiousness on Cigarette Smoking

In a review of the literature examining the relationship between religiosity and cigarette smoking, 96% of the studies reported less smoking by more religious participants (Koenig, McCullough, & Larson, 2001). This inverse relationship appears to hold true across different religions and is independent of age (Oleckno & Blacconiere, 1991). In a Cross-sectional analysis of 3968 persons aged 65 years or more revealed that participants who frequently attended religious services were significantly less likely to smoke cigarettes (Sharma, Suman, Manjula, Marimuthu, & Ahmad, 2011).

In addition to being less likely to ever begin smoking cigarettes (Koenig, George, Cohen, Hays, Blazer & Larson, 1998), regular church attendees are more likely to have quit smoking after developing the habit (Gmur, & Tschopp, 1987). The study of adults in Alameda County, California also has shown that people who attend religious services are less likely to smoke cigarettes in the first place; however, if those who attend did smoke at the beginning of the study, they were more likely than those who didn't attend services to quit smoking during the period of the study (Strawbridge, Cohen, Shema, & Kaplan, 1997). The Coronary Artery Risk Development in Young Adults (CARDIA) study was a longitudinal investigation designed to measure the evolution of heart disease in young individuals. The study recruited over 4500 black and white men and women who provided extensive information on their health behaviours and related psychosocial factors (Friedman, Cutter, Donahue, Hughes, Hulley, & Jacobs, Liu, & Savage, 1988).

Nonnemaker, McNeely and Blum (2003) examined data from another National Longitudinal Study of Adolescent Health to test the association of public and private religiosity with adolescent health outcomes. Participants included 16,306 individuals in grades 7-12. This study found that both public (attendance and religious services and activities) and private (prayer and self-

reported importance of religion) religiosity were positively associated with abstinence from cigarette smoking (Nonnemaker et al., 2003).

2.4.5 The Influence of Religiousness on Drug Use

In practice religious affiliation, attending religious events and activities related to religiosity are considered important as factors associated to low rates of drug use in young adults. For Stylianou (2004), who investigated consumption patterns and religious concepts among Cypriot University students, religiosity indirectly controls drug use through the perceived moral breakdown that the act represents. Epidemiological studies have shown that high levels of religiosity are associated with a smaller prevalence of drug use by young people, clearly identifying religion as a protective factor against the use of psychoactive substances (Gandhour, Karam, & Maalouf, 2009; Sinha et al., 2007).

Kendler et al. (2003) used data from a general population sample to examine the dimensions of religiosity and the relationships of these dimensions to risk for lifetime psychiatric and substance use disorders. Responses to 78 items assessing various aspects of broadly defined religiosity were obtained from 2,616 male and female twins from a general population registry. The association between the resulting religiosity dimensions and the lifetime risk for nine disorders assessed at personal interview was evaluated by logistic regression. Results showed an inverse relationship between certain aspects of religiosity and a lifetime history of substance use disorders (Kendler et al., 2003). Pullen, Modrcin-Talbott, West and Muenchen (1999) investigated relationships between alcohol and drug abuse by adolescents and frequency of religious service attendance in the south-east United States. Data obtained from surveys of 217 adolescents, age 12-19 years, were analysed. The adolescents included participants from both clinical and non-clinical settings. Results from both groups showed that, as attendance at religious services increased, alcohol and drug use decreased (Pullen et al.1999).

Family religiosity plays an important role in reducing drug use behaviour among adolescents. Merrill, Salazar and Gardner (2001) evaluated the relationship between several dimensions of parental and family religiosity and adolescent drug use behaviour. Analysis was based on responses to a self-report questionnaire administered to 1,036 undergraduate university students at Brigham Young University, of whom 99.1% were members of the Church of Jesus Christ of Latter-Day Saints (LDS). About 86% reported having never used drugs. The most commonly reported reasons for abstention from drugs were that drug use violates the participants' religious beliefs and their personal moral code. In contrast, concern about legal consequences, harming family reputation, and avoiding dishonest behaviour were among the least common reasons for abstaining from drugs. According to the study, children of parents who were neutral, versus critical, about religion were more likely to have a history of drug use. The inverse relationship tends to be relatively strong among members of the Church of Jesus Christ of Latter-Day Saints (LDS). This may be due to the strict health code in the LDS Church discouraging tobacco, alcohol, coffee, tea and illicit drugs and the misuse of prescription drugs (Merrill et al., 2001).

2.4.6 Religiosity and Engagement in Physical Activities

Few studies have examined the relationship between physical activity and religiosity, and the limited studies that have been conducted leave many questions unanswered (Koenig et al., 2001). Oleckno and Blacconiere (1991) reported that highly religious college students were more likely to engage in regular exercise than “low religious” students. In contrast, McIntosh and Spilka (1990) reported that intrinsic religiosity (the internalization of beliefs and practices that are independent of social pressure or personal consequences) was inversely related to exercise.

Strawbridge, Shema, Cohen and Kaplan (2001) examined religious attendance and physical activity patterns in the Alameda County study. They compared baseline data (1965) with follow-up data (1994). They found that regular church attendees at baseline were more likely than non-attendees to

be regular exercisers approximately 30 years later. Baseline measurements of physical activity did not differ according to religious attendance. Therefore, it is plausible that over time, individuals integrate physical activity practices into their religious belief system.

A qualitative study conducted by Bopp et al. (2007) examined factors that influence African Americans' engagement in physical activity, the association between religiosity and health behaviours, and the role of church promotion of physical activity. Participants were 44 sedentary or underactive African American church members (24 men, 20 women) in Columbia and Charleston, who completed a brief demographic survey and participated in focus groups. Bopp et al. (2007) found that participants felt that scripture guided their desire to take care of their bodies. Participants reported that prayer (e.g., asking God for help), physical activity, and eating healthier facilitated their goal to take care of themselves.

In the large, sample of the CARDIA study, individuals who attended church once per month or more reported less involvement with athletic teams or sports clubs compared to low frequency church attendees (Whooley, Boyd, Gardin, & Williams, 2002). For example, some studies reported a positive association between religious involvement and greater physical activity (Hill et al., 2006).

2.4.7 Religiousness and the Consumption of a Healthy Diet

One of the religious practices that are common in many religions is diet; many religions believe that the food one partakes affects both body and mind, and most religions have specific dietary guidelines regarding what food to eat or avoid (Tan, Chan, & Reidpath, 2014). One study reported that a positive relationship existed between extrinsic religiosity (socially motivated) and low-fat dietary intake (Hart, Tinker, Bowen, Satia-About, & McLerran, 2004). A study conducted in the U.S, of 1000 elderly persons by the University of Alabama at Birmingham, religious attendance was one of the measures of social capital; and among African American men, not attending religious

services regularly was associated with higher nutritional risk (Locher, Ritchie, Roth, Baker, Bodner, & Allman, 2005). By contrast, a small number of religiosity and diet studies showed a negative association between religiosity and diet (Tan, Chan, & Reidpath, 2014).

In the 2004 Survey of Texas Adults, a negative association was found between religious attendance and diet quality, that is, a monthly religious attendance was associated with reduced odds of sound diet quality (Hill et al., 2006). Some studies reported mixed association between different dimensions of religiosity and diet. For example, in a study of 3620 African Americans adults aged 28–34 years, those who prayed regularly and placed more importance in religion were more likely to consume fast food, while those who attend religious services more were less likely to consume such food (Dodor, 2012). Seven out of 12 studies on religiosity and fat intake showed no significant relationship between the two variables (Tan, Chan, & Reidpath, 2014) However, one study reported that a positive relationship existed between extrinsic (socially motivated) religiosity and low-fat dietary intake (Hart, Tinker, Bowen, Satia-About, & McLerran, 2004).

2.4.8 The Role of Gender in the Relationship between Religiousness and Health Risk Behaviours

Because self-report of eating habits is often unreliable (Muhlheim, Allison, Heshka, & Heymsfield, 1998), scientists often use objective measures, such as body weight, as an indicator of eating habits and activity patterns. There are a majority of studies that have examined weight as it relates to religious activities. Results from a large survey of 3,497 people indicated that higher religious practice was more common among individuals who were overweight (Ferraro, 1998). In the CARDIA study (Whooley, Boyd, Gardin, & Williams, 2002); young adults who attended church at least monthly had a significantly higher BMI (25.7) than participants who attended less than once per month (24.8). According to a study by Lapane and colleagues (1997) that examined data from the Pawtucket Heart Health Program surveys from 1981-82 and 1983-84, church members were more likely to be greater than 20 percent

overweight compared to non-church members and appeared to have more adverse cardiovascular risk factor profiles.

2.4.9 Gender Differences on the Effects of Religiousness

Buchko (2004) suggested that college women, to a greater extent than college men, “experience a strong spiritual relational component to their religious faiths” (p. 96). Burdette, Ellison, Hill and Glenn (2009) found that college-aged Protestant women are significantly less likely to engage in casual sexual relationships than Catholic women and women who do not endorse a religious affiliation. Poulson, Eppler, Saterwhite, Wuensch and Bass (1998) study of college students in a rural region of the south western United States concluded that women with strong religious beliefs consumed less alcohol and were less likely to engage in casual sex than women with weaker religious beliefs. Among men, religion was not significantly correlated with alcohol consumption or risky sexual behaviours (Poulson et al., 1998). In an interview study of nearly 2,000 women, Kendler, Gardner and Prescott (1997) found that the extent to which religion is important to a person and the extent to which an individual’s religious group adheres to traditional values were negatively related to alcohol dependence.

Recent population surveys reveal that, among both Christian and non-Christian populations, women are more likely than men to affiliate with religious institutions, to pray, to say religion is important in their lives, to read religious texts, and to believe in life after death (Stark, 2002). Adlaf and Smart (1985) examined the relationship between religious affiliation, intensity of religious feelings, frequency of church attendance on one hand, and on the other, drug use among a sample of adolescent students. Six drug-use measures were employed: alcohol use; cannabis use; non-medical and medical drug use; hallucinogenic use; and poly-drug use. The findings indicated that, religious-affiliation of students was not significantly related to drug use. The only exception to this rule was for alcohol use, in which case

non-affiliated students used less frequently than did Protestant or Roman Catholic students. Church attendance exhibited a stronger negative effect on drug use than did religious affiliation. However, the effect of the latter had greater impact among females than among males (Adlaf & Smart, 1985).

Another descriptive study of 1,902 adult women examined their religiosity and their current and lifetime use of alcohol and nicotine (Kendler, Gardner, & Prescott, 1997). The participants were questioned on their religious preferences. Participants also answered 10 religious items (e.g. importance of religious beliefs and belief in God). Analysis of the 10 items found a two factor structure of personal conservatism and personal devotion with twins highly correlating with each other on both factors. The study concluded that religiosity was inversely related to alcohol and drug use (Kendler, Gardner, & Prescott, 1997).

A small number of religiousness and gender differences on health risks behaviours studies showed mixed results between religiousness and gender difference on health risks behaviours. For example, Blotcher et al. (2011) conducted an observation study of 71,689 post-menopausal women enrolled in the Women's Health Initiative and found that religious attendance had an inverse relationship with cigarette smoking, alcohol, high fibre intake. However there was no significant relationship between religious attendance and regular exercise and lower saturated fat and caloric intake (Blotcher et al., 2011). Steinman and Zimmerman (2004) conducted a study of 705 African American youths on how religious activity was associated with risk behaviours. They found that higher levels of religious activity were associated with drug and cigarette use for both genders. In addition, religious activity was not statistically associated with alcohol use and sexual intercourse for both genders.

CHAPTER THREE

Research Methodology

3.1 Introduction

This chapter outlines the research methodology used in the present study. It outlines the research design used, research procedure followed, methods used in data collection, and the way in which the data were analysed.

3.2 Research setting

The study was conducted at the University of Limpopo, Turfloop campus. The university is situated in Mankweng, a township within Polokwane, Limpopo province. Mankweng is a vibrant cultural diversity place. The university is freely accessible by car, taxi, and even a bus. The University of Limpopo is historically a predominantly Black university. There are four (4) faculties at the university. They include Faculties of Management and Law, Health Sciences, Humanities and Sciences and Agriculture.

3.3 Research Design

This was a study utilizing quantitative research methods. A cross-sectional, non-experimental study was done. It involves the measurement of all variables for all cases within a narrow time span so that measurements may be viewed as simultaneous (Breakwell, Fite-Schaw, & Hammond, 2000).

3.4 Gaining Entry to the Research Site

The researcher did not experience great challenges accessing the research site and students from the institution. The researcher conducted the study in his alma mater. It also helped that the researcher obtained an ethical clearance certificate which also demonstrated that there was approval of the study to be conducted among students. The researchers first asked for permission to conduct the study from the university authorities. Thereafter,

lecturers were asked to provide time during normal lectures for the researcher to recruit participants.

3.5 **Sampling and Sample Size**

The sample of the study was drawn from the student population of a historically Black university in Limpopo, South Africa. Participants were recruited using a convenience sampling procedure. This means that they were selected based on accessibility and availability. In total, 335 students were selected. All the participants were of African descent. Eventually, only 333 single participants were considered for analysis, while 2 of them were excluded since they were married, considering that their experiences may affect the outcomes differently.

3.6 **Research Variables**

The variables utilized in the study are as follows:

Independent variable(s) : Religiousness (intrinsic religiosity)

Dependent variable(s) : Health risk behaviours (Alcohol consumption
risky sexual behaviour, smoking cigarette,
drug use, physical activity, and diet).

Control variable : Gender.

3.7 **Methods of data collection**

Data was collected by means of a structured, self-administered questionnaire which included three scales namely; demographic Information, National College Health Risk Behaviour Survey (NCHRBS) and Religious Orientation Scale-Revised (I-E/R). Below follows a brief motivation for the choice of instrument and its properties used

3.7.1 Instruments

The instruments that were used in the study were; demographic information; College Health Risk Behaviour Survey and the Religious Orientation Scale-Revised scale. Each of the scales will be explained below.

The demographic information is a self-constructed questionnaire that measured the demographic and socioeconomic characteristics of the participants. The following demographic and socio-economic characteristics of the participants were assessed: age, gender, marital status, residence and faculty.

Questions from the NCHRBS (CDC, 1997) were included in the questionnaire. Risky health behaviours covered included smoking, marijuana use, lack of balanced meals, sexual risk behaviours (infection with a sexually transmitted disease and experience with sexual intercourse) and consumption of alcoholic beverages. The NCHRBS has been commonly used in the US for some time since its conception in 1995 (DeSimone, 2007). The reliability of the scales in the measure has been established in the initial study when it was first used (CDC, 1997; American College Health Association, 2005).

The full form of the Religious Orientation Scale-Revised (I-E/R) scale assesses eight realms of intrinsic religiosity. The scale is 14 items long, with 6 items pertaining to extrinsic expressions of religion and 8 items pertaining to intrinsic expressions. Paloutzian's (1996) research distinguishes between extrinsic and intrinsic religiosity, with the former being participation in religion and religious institutions primarily for social interests and purposes. On the other hand, intrinsic religiosity refers to the use of religion for inner, spiritual rewards, where religious beliefs and ordinances are internalized. For this particular reason the researcher used only the intrinsic subscale of the Gorsuch and McPherson (1989) measure to assess religiousness among students. Participants are asked to rate their agreement with various statements on a scale of 1 ("strongly disagree") to 5 ("strongly agree"). An

example of an intrinsic item in the scale is, "It is important for me to spend periods of time in private religious thought and meditation". The scale has previously been used successfully with a sample similar to the present one (Mudau, Moripe, & Mashegoane, 2011). In this study, reliability was estimated at a modest $\alpha = 0.539$.

3.7.2 Ethical Consideration

The proposal of the study was approved by the University of Limpopo's Ethics Committee. The same body provided an ethical clearance certificate (see appendix). Participants who did not wish to participate were allowed to withdraw from the study. Anonymity and confidentiality were assured to participants as it was explained that the results of the study were going to be used for research purposes only. Participants were not identified on the questionnaires for the sake of confidentiality. They were not expected to write their names in any of the questionnaire pages and it was explained that information they provided would be published, however, readers would not be able to identify who provided the information since their names would not be included on the questionnaire. The verbal explanations and consent were also supplemented by the written form.

3.8 Conclusion

This chapter discussed the methodology which was employed in the present study and also discussed the nature and properties of the measures to be used for data collection. The next chapter presents the results of the study.

CHAPTER FOUR

Results

4.1 Introduction to Data Analysis

This chapter presents the results of the study. Analysis was conducted using the statistical software called the Statistical Package for Social Sciences version 22 (IBM SPSS Statistics 22.0) (IBM SPSS, 2013). The reliability levels of the instruments used were tested. Before any analysis could commence, all relevant scale items were reverse scored and missing values were replaced with the mean. Scores of four participants on intrinsic religiosity were found to be outliers and were subsequently removed before the main analysis was conducted, they were excluded since they were married, experiences which may affect outcomes differently. Furthermore, to examine the relationship between religiousness and spirituality with health risk behaviours, two-way analysis of variance was employed.

4.2 Preliminary Data Analysis

Table 1 below shows the participants' socio-demographic information. The sample of the study consisted of 333 registered Black-African students in the University of Limpopo. Participants were sourced from three disciplines (Humanities, Law and management, Health Science and Science) and convenience sampling was employed as a sampling method. A high percentage (35.8%) of participants was from the School of Humanities. The majority of participants (52.8%) were females and were living in the university hall residence (78.5%). Age was divided into three categories (15-20, 21-25 and 26-30) wherein the large numbers (57.3%) of participants were found to be between the ages 15-20 years. The majority (99.4%) of the participants were single.

Table 1:
Demographic information (N = 335)

		Frequency	%
1.	Gender		
	Male	158	47.2
	Female	177	52.8
2.	Age		
	15-20	192	57.3
	21-25	141	42.1
	26-30	2	.6
3.	Marital status		
	Single	333	99.4
	Married	2	.6
4.	Living arrangement		
	Home with relatives	16	4.8
	University halls of residence	263	78.5
	Rented dwelling with friends	24	7.2
	Renting dwelling alone	32	9.6
5.	Faculty		
	Law & management sciences	107	31.9
	Health sciences	108	32.2
	Humanities	120	35.8

Note: Not all percentages per variable add up to 100% due to rounding off. Only students who were single were used for the analyses, except for the marital status variable. The marital status variable also shows the values for married, divorced and widowed students, although these are not included in the final analysis.

4.3 Main Analysis

The main analyses involved conducting a two-way analysis of variance (ANOVA) using intrinsic religiosity. The dependent variable in the analysis was split into quartiles. Analysis proceeded along the lines of comparing the mean scores of participants falling in each of the religiosity quartiles for each of the risky health behaviours. The comparative mean scores are listed in table 2 below. The analysis was meant to explore the following hypotheses:

The effects and high levels of religiousness will be associated with low health risk behaviours and will be more among female students.

Table 2:**Means and standard deviations of risky health behaviours by quartiles for intrinsic religiosity**

Risk behaviour	Intrinsic Religiosity Level			
	<i>1st Quartile (N = 97)</i>	<i>2nd Quartile (N = 71)</i>	<i>3rd Quartile (N = 91)</i>	<i>4th Quartile (N = 76)</i>
	$\bar{X}(SD)$	$\bar{X}(SD)$	$\bar{X}(SD)$	$\bar{X}(SD)$
<i>Alcohol intake</i>	5.680(3.350) ^a	6.718(3.888)	7.0220(4.011)	8.487(4.331) ^b
<i>Sexual behavior</i>	11.38 (5.094) ^a	13.15 (5.242)	14.00 (5.222) ^b	14.47 (5.188) ^b
<i>Tobacco use</i>	10.54 (4.925) ^a	12.37 (7.198)	11.22 (5.517) ^a	14.00 (8.223) ^b
<i>Drug use</i>	3.61 (2.008) ^a	3.63 (2.173) ^a	3.63 (2.047) ^a	4.91 (3.692) ^b
<i>Physical activity</i>	14.48 (5.530)	16.18 (7.102)	15.88 (6.456)	15.47 (6.482)
<i>Diet</i>	17.12 (2.306)	17.13 (2.267)	17.52 (2.321)	17.13 (2.265)

Note: All df = 2, 328

4.4 ANOVA test results of risky health behaviours with intrinsic religiosity

The first analysis was a 2 (Gender) x 4 (Intrinsic religiosity) ANOVA conducted to test the relationship between intrinsic religiosity levels and various risky health behaviour scores (alcohol consumptions, risky sexual behaviour, cigarette smoking, drug use, engagement in physical activity and diet). The mean scores are listed in table 2. Table 3 shows that there was a significant main effect of the levels of intrinsic religiosity, on the amount of alcohol consumed by the students, $F(3, 327) = 5.241$, $p < 0.01$, $partial \eta^2 = 0.046$. There was no gender main effect, $F(1, 334) = 0.421$, $p > 0.05$, $partial \eta^2 = 0.001$. The interaction effect was also not significant, $F(3, 327) = 2.159$, $p > 0.05$, $partial \eta^2 = 0.019$ (see mean scores for these and all other analyses in Table 2).

Table 4 shows that there was a significant main effect of the levels of intrinsic religiosity, on the number of risky sexual behaviours engaged in by the students, $F(3, 327) = 6.197$, $p < 0.001$, $partial \eta^2 = 0.054$. There was no gender main effect, $F(1, 327) = 0.442$, $p > 0.05$, $partial \eta^2 = 0.002$ and there was no interaction effect, $F(3, 327) = 0.934$, $p > 0.05$, $partial \eta^2 = 0.001$. Table 5 shows that there was a significant main effect of the levels of intrinsic religiosity, on the use of cigarette by the students, $F(3, 326) = 2.908$, $p < 0.05$, $partial \eta^2 = 0.026$. There was also a gender main effect, $F(1, 333) = 8.178$, $p < 0.01$, $partial \eta^2 = 0.024$. The interaction effect was not significant, $F(3, 326) = 0.213$, $p > 0.05$, $partial \eta^2 = 0.002$.

Table 6 shows that there was a significant main effect of the levels of intrinsic religiosity, on the use of drugs by the students, $F(3, 334) = 4.805$, $p < 0.01$, $partial \eta^2 = 0.042$. There was also a gender main effect, $F(1, 334) = 6.423$, $p < 0.01$, $partial \eta^2 = 0.019$. The interaction effect was not significant, $F(3, 334) = 0.709$, $p > 0.05$, $partial \eta^2 = 0.004$. Table 7 shows that there was no main effect of the levels of intrinsic religiosity, on the amount of physical exercise activities the students engage in, $F(3, 334) = 1.493$, $p > 0.05$, $partial \eta^2 = 0.014$. There was a significant gender effect, $F(3, 334) = 5.893$, $p < 0.05$, $partial \eta^2 = 0.01$, and the mean scores showed that overall, male students

engaged in more physical activity than females. However, the differences of scores of engagement in physical activities were marginal ($t = 1.881, p = 0.061$). There was also a significant interaction effect, $F(1, 334) = 2.687, p < 0.05, \text{partial } \eta^2 = 0.024$. To obtain a better picture of the results, factorial ANOVA was conducted separately for males and females. Among male students, those who reported high intrinsic religiosity tended to engage in more physical activities, $F(1, 158) = 2.903, p = 0.037$. Among female students, intrinsic religiosity did not have an impact on the amount of physical activity engaged in, $F(1, 177) = 0.855, p = 0.466$.

For diet, Table 8 shows that the interaction between gender and intrinsic religiosity, $F(3, 327) = 0.721, p > .05, \text{partial } \eta^2 = 0.004$, intrinsic religiosity main effect, $F(3, 327) = 0.566, p = 0.05, \text{partial } \eta^2 = .005$, and gender main effect, $F(1, 327) = 1.518, p > 0.05, \text{partial } \eta^2 = 0.005$ had no statistically significant impact on scores of the students' consumption of healthy foods daily.

Table 3:

ANOVA test results of alcohol consumption with intrinsic religiosity

<i>Source of variation</i>	<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F value</i>	<i>p-value</i>	<i>Partial Eta Squared</i>
<i>Gender</i>	6.496	1	6.496	.416	.519	.001
<i>Intrinsic religiosity</i>	127.788	3	42.596	2.731	.044	.024
<i>Gender * Intrinsic religiosity</i>	84.376	3	28.125	1.803	.146	.016
<i>Error</i>	5100.399	327	15.598			
<i>Corrected Total</i>	5329.749	334				

Table 4:**ANOVA test results of risky sexual behaviours with intrinsic religiosity**

<i>Source of variation</i>	<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F value</i>	<i>p-value</i>	<i>Partial Eta Squared</i>
<i>Gender</i>	16.046	1	16.046	.592	.442	.002
<i>Intrinsic religiosity</i>	503.775	3	167.925	6.197	.000	.054
<i>Gender * Intrinsic religiosity</i>	11.633	3	3.878	.143	.934	.001
<i>Error</i>	8861.511	327	27.099			
<i>Corrected Total</i>	9389.301	334				

Table 5:**ANOVA test results of cigarette smoking with intrinsic religiosity**

Source of variation	Sum of Squares	Df	Mean Square	F value	p-value	Partial Eta Squared
<i>Gender</i>	338.291	1	338.291	8.178	.005	.024
<i>Intrinsic religiosity</i>	360.860	3	120.287	2.908	.035	.026
<i>Gender * Intrinsic religiosity</i>	26.447	3	8.816	.213	.887	.002
<i>Error</i>	13484.914	326	41.365			
<i>Corrected Total</i>	14266.901	333				

Table 6:**Two-way analysis of variance test results of drug use with intrinsic religiosity**

<i>Source of variation</i>	<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F value</i>	<i>p-value</i>	<i>Partial Eta Squared</i>
Gender	40.602	1	40.602	6.423	.012	.019
Intrinsic religiosity	91.114	3	30.371	4.805	.003	.042
Gender * Intrinsic religiosity	8.760	3	2.920	.462	.709	.004
<i>Error</i>	2966.989	327	6.321			
Corrected Total	2214.490	334				

Table 7:
ANOVA test results of physical exercise activities with intrinsic religiosity

<i>Source of variation</i>	<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F value</i>	<i>p-value</i>	<i>Partial Eta Squared</i>
<i>Gender</i>	231.955	1	231.955	5.893	.016	.018
<i>Intrinsic religiosity</i>	176.345	3	58.782	1.493	.216	.014
<i>Gender * Intrinsic religiosity</i>	317.293	3	105.764	2.687	.047	.024
<i>Error</i>	12871.257	327	39.362			
<i>Corrected Total</i>	13514.836	334				

Table 8:
ANOVA test results of diet with intrinsic religiosity

<i>Source of variation</i>	<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F value</i>	<i>p-value</i>	<i>Partial Eta Squared</i>
<i>Gender</i>	8.008	1	8.008	1.518	.219	.005
<i>Intrinsic religiosity</i>	8.955	3	2.985	.566	.638	.005
<i>Gender * Intrinsic religiosity</i>	7.035	3	2.345	.444	.721	.004
<i>Error</i>	1725.136	327	5.276			
<i>Corrected Total</i>	1749.839	334				

CHAPTER FIVE

Discussion

5.1 Introduction

This study had as its overall goal the investigation of the influence of religiousness on health risk behaviours among Black South African university students. It examined the relationship between religiosity and a series of risk behaviours. The relationships were investigated in the context of gender. Gender was factored into the analysis to see if it would impact the outcomes of analysis. The sections following immediately hereafter will attempt to relate the findings of the present study to existing empirical findings. This will be followed by a section on conclusion, and then limitations of the study and recommendations flowing from the study.

5.2 Discussion of Results

The results show that intrinsic religiosity is an important factor to consider in an attempt to minimize learners' engagement in health risk behaviours. There was a relationship between intrinsic religiosity and four (such as risky sexual behaviours, cigarette smoking, drug use and engagement in physical activity) of the six health risk behaviours included in this study. However, the results are unique. The negative association between intrinsic religiosity and both cigarette smoking and alcohol consumption, and the effect of gender on the relationships are in line with existing research (Fletcher, & Kumar, 2014; Gomes, de Andrade, Izbicki, Almeida, & de Oliveira, 2013). So is the negative association with alcohol intake and sexual experience (Brown, Parks, Zimmerman, & Phillips, 2001; Gold et al., 2010; Gomes et al., 2013; Reed & Meyers, 1991).

Nevertheless, lack of gender effect on alcohol consumption and risky sexual behaviours is contrary to research trends (Meier, 2003; Rostosky et al., 2004). A South African study found that intrinsic religiosity in particular, protected female students from beginning with sexual activity (Mashegoane, Moripe, & Rakubu, 2012).

Therefore, it is not clear why there was no direct effect of gender on the relationship between intrinsic religiosity and engaging in sexual intercourse. Since there are other studies where gender does influence engagement in risk behaviours, including alcohol intake and sexual behaviour (Meier, 2003; Piko & Fitzpatrick., 2007; Rostosky et al., 2004; Sinha et al., 2007; Steinman & Zimmerman, 2004), it means that the issue of gender is inconclusive and should be investigated further. The study by Neymotin and Downing-Matibag (2013) show that the conditions under which gender can play a role in the association between religiosity and risk behaviours such as sexual behaviour and alcohol intake depend on other factors, such as attachment to the school.

Further analysis of the data showed that there was no direct influence of intrinsic religiosity and both engaging in physical activity and the type of diet consumed by learners. Lack of direct influence of intrinsic religiosity on learners' physical activity and diet seems to reflect the state of research in this area. There are studies where intrinsic religiosity had no influence on learners' engagement in physically demanding activities and the diet they consume (Harcrow, 2010). In fact, one study actually found that intrinsic religiosity hampers engagement in physically demanding activities (McIntosh, & Spilka, 1990).

This association between the variables can be explained by what the students encounter when they start university. Most higher education learners are at a stage of development where they experiment with new ideas, what psychosocial theory refers to as moratorium, and appear to be influenced by the university environment (Erikson, 1968). They may also depart from conservative ideas, such as contained in their religions or values held by their parents. Therefore religion may play less of a role in determining the type of food they consume. Eating fast foods as opposed to home-type meals is common among university students.

The results of statistical analysis showed that the influence of intrinsic religiosity on learners' engagement in physical activity occurs only in

conjunction with gender effects. Male students who were high on intrinsic religiosity tended to engage in physical activities more than females. Among males themselves, there was a trend that those male students who reported more intrinsic religiosity engaged in more physical activity. The relationship between religiosity and physical activity require further study since there appears not to be many studies, and those that are there do not find a clear relationship (Kim & Sobal, 2004). Nevertheless, the results of both engagement in physical activity and the consumption of healthy diets reflects the risk status in South Africa, where females are overweight, more so than males (Abrahams, Mchiza & Steyn 2011; Shisana et al., 2013). Intrinsic religiosity may be one of the factors to be taken into account when explaining the reasons for risk behaviours related to diet and engagement in physical activity.

5.3 Conclusion

The current study examined the influence of religiousness on health risk behaviours among first entering university students. The results showed that intrinsic religiosity had direct impact on alcohol consumption and risky sexual behaviours of the students. This finding confirms what is already in the literature. However, the study could not find the interaction main effects of intrinsic religiosity and gender on alcohol consumption and risky sexual behaviours of the students. This study did not provide evidence to show why that is the case and little information is available from previous studies regarding this. Further research is however needed to determine and understand these issues.

This study has proven that intrinsic religiosity and effects of gender have influence on the cigarette smoking and drug use of the students. This finding adds to the growing body of research that supports the value of intrinsic religiosity and gender as protective factors in students cigarette smoking and drug use. Furthermore, the study proves that there are gender main effects and also gender and intrinsic religiosity interactions for engagement in physical activity. But this was not found for diet of the students. The results of

the study did not seem to conform to what is already known in the literature. Therefore, the findings of the study should be accepted with caution, until they are replicated.

5.4 **Limitations and Recommendations of the Study**

The importance of the influence of intrinsic religiosity on health risk behaviours is a process that may change with time and circumstances. Therefore it should not be observed at a single point in time, as it was with the cross-sectional design in the present study. Future researchers can use a longitudinal design.

A major limitation in the present study was that influence of religiosity on health risk behaviours were studied from the point of view of first entering students. Studying returning student's influence of religiousness would add value to studies such as the one conducted here. It is likely that returning students may see things different from first entering student's adolescent children. In future, researchers should include both returning students and first entering in the same study.

The reason for lack of significance for associations between intrinsic religiosity and engagement in physical activities may also have to do with the type of design that was used in the present study. Some studies could link the relationship between heavy drinking and participation in physically demanding activities (Eitle, Turner, & Eitle, 2003; Lorente, Souville, Griffet, & Grélot, 2004). This suggests that the relationship between some variables can only be detected using different types of study models. It is recommended that future studies must use designs where it is possible to study three-way relationships. Future studies must study mediating factors rather than direct relationships.

I may as well add that no piloting of the data collection instrument was done. It is possible that although the scales used have a long and good history of used among student populations, and one of them has been used repeatedly

in the research site of this study, that characteristics of the student population may have changed. As a rule, the instrument should have been piloted.

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APPENDIXES

APPENDIX A: Information letter

Department of Psychology
University of Limpopo
Private Bag X1106
Sovenga
0727
(Date)

Dear Prospective Participant

Thank you for showing interest in this study that focuses on the influence of religiousness on health risk behaviours among first entering university students. The study concerns religious beliefs and patterns of behavior that are found among young people on campuses. This is not to say that they are right or wrong. We simply want to understand what your beliefs are and how do you engage in some or all of the behaviours. The information will be valuable in putting in place services for students.

Your participation in this study will remain anonymous and strictly confidential. Be assured that every response you give will be kept strictly confidential and your name will not be disclosed. In any case, you are not supposed to write your name or any personal details on any of the pages of the questionnaire.

Very important to note is that your participation in this study is completely voluntary. Additionally, you have the right to terminate your participation at any time without giving any reasons for it.

Please answer all the questions as honest as possible. Your participation in this research is very important. Thank you for your time and cooperation.

Yours Truly

.....

Pule H.S

Masters Student

.....

Date

APPENDIX B: Ethics clearance certificate



University of Limpopo
Department of Research Administration and Development
Private Bag X1106, Sovenga, 0727, South Africa
Tel: (015) 268 2212, Fax: (015) 268 2306, Email:noko.monene@ul.ac.za

TURFLOOP RESEARCH ETHICS COMMITTEE CLEARANCE CERTIFICATE

MEETING: 02 September 2015

PROJECT NUMBER: TREC/125/2015: PG

PROJECT:

Title: The influence of religiousness and spirituality on health risk behaviours among First Entering University students
Researcher: Mr HS Pule
Supervisor: Dr S Moripe
Co-Supervisor: Prof S Mashegoane
Department: Psychology
School: Social Science
Degree: Masters in Clinical Psychology


PROF TAB MASHEGO
CHAIRPERSON: TURFLOOP RESEARCH ETHICS COMMITTEE

The Turfloop Research Ethics Committee (TREC) is registered with the National Health Research Ethics Council, Registration Number: REC-0310111-031

Note:

- i) Should any departure be contemplated from the research procedure as approved, the researcher(s) must re-submit the protocol to the committee.
- ii) The budget for the research will be considered separately from the protocol.
PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES.