The factors affecting risk-taking behaviour among middle and late adolescents: An ecological systems perspective

by

Marizé de Jager

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Declaration

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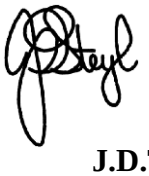

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Abstract

Adolescence is the developmental stage during which individuals engage in reckless, thrill-seeking, and risk-taking behaviour to a greater extent than during any other life period. Risk-taking behaviour is common among South African adolescents (Reddy et al., 2010). Research studies often focus on individual factors or personality predispositions that contribute to risk-taking behaviour, but rarely simultaneously examine social and community factors that contribute to risk-taking behaviour in adolescents. Therefore, the aim of the current study was to investigate the role of various systems (parents, peer group, school, and community) in contributing to risk-taking behaviour (violence, substance use, and risky sexual behaviour) in middle and late adolescent males and females. An ecological systems perspective was followed.

A non-experimental quantitative research approach was used. By means of non-probability, convenience sampling, a sample of 194 participants was selected from four English-medium high schools in the Mangaung area of central South Africa. A biographic questionnaire, the adapted and shortened version of the Youth Risk Behaviour Survey (YRBS), and a questionnaire compiled by Amoateng and Kalule-Sabiti (2013) were used to collect data. Data were analysed by means of multivariate analyses of variance (MANOVA) and standard multiple regression analysis.

The results obtained from this study indicated that males are more prone to risk-taking behaviour than females are. Furthermore, the study indicates that four contextual factors significantly contribute to the variance in risk-taking behaviour. Significant negative correlations were found between risk-taking behaviour and parental limit-setting and between risk-taking behaviour and parental monitoring. Finally, significant positive correlations were found between risk-taking and parental control and between risk-taking behaviour and peer connection.

Keywords: South African adolescents, risk-taking behaviour, violence, substance use, risky sexual behaviour, parental influence, peer influence, school influence, community influence

Opsomming

Adolessensie is die ontwikkelingstadium waartydens individue tot ’n groter mate as in enige ander lewenstydperk roekelose, sensasiesoekende en risikonemende gedrag onderneem. Risikonemende gedrag is algemeen onder Suid-Afrikaanse adolessente (Reddy et al., 2010). Navorsingstudies fokus dikwels op individuele faktore of persoonlikheidsvatbaarhede wat tot risikonemende gedrag bydra, maar ondersoek selde sosiale en gemeenskapsfaktore wat tot risikonemende gedrag by adolessente bydra. Die doel van die huidige studie was daarom om die bydraende rol van verskeie stelsels (ouers, portuurgroep, skool en gemeenskap tot risikonemende gedrag (geweld, substansiegebruik en riskante seksuele gedrag) by middel- en laat-adolessente mans en vrouens te ondersoek. ’n Ekologiese stelsel-perspektief is gevolg.

’n Nie-eksperimentele, kwantitatiewe navorsingsbenadering is gebruik. Deur middel van ’n nie-waarskynlikheid-, gerieflikheidsteekproef is ’n steekproef van 194 deelnemers uit vier Engelsmediumskole in die Mangaung-area van Sentraal Suid-Afrika geselekteer. ’n Biografiese vraelys, die aangepaste en verkorte weergawevan die Youth Risk Behaviour Survey (YRBS), en ’n vraelys saamgestel deur Amoateng en Kalule-Sabiti (2013) is gebruik om data te versamel. Data is deur middel van meerveranderlike variansie-ontledings (“multivariate analyses of variance” – MANOVA) en standaard meervoudige regressie-ontleding ontleed.

Die resultate uit die studie verkry, dui daarop dat mans meer tot risikonemende gedrag geneig is as wat vrouens is. Verder het die studie getoon dat vier kontekstuele faktore beduidend tot die variansie in risikonemende gedrag bydra. Veelseggende negatiewe korrelasies tussen risikonemende gedrag en ouerlike bepaling van perke en tussen risikonemende gedrag en ouerlike monitering is gevind. Laastens is veelseggende positiewe korrelasies tussen risikoneming en ouerlike beheer en tussen risikonemende gedrag en portuurgroep-konneksie gevind.

Sleutelwoorde: Suid-Afrikaanse adolessente, risikonemende gedrag, geweld, substansiegebruik, riskante seksuele gedrag, ouerlike invloed, portuurgroep-invloed, skoolinvloed, gemeenskapsinvloed

CHAPTER 1

Context of the Study

In this chapter, an outline of the current research study, focussing on the context, rationale, and theoretical perspectives applied, is given. Emphasis is placed on the concepts of adolescence, risk-taking behaviours, and Bronfenbrenner's (1993) bio-ecological systems perspective. An overview of the research design and methodology used in this study is provided, and finally the chapter is concluded with a delineation of the chapters as set out in this study and chapter summary.

1.1 Context and rationale of the research

Adolescence is the developmental stage during which individuals engage in reckless, thrill-seeking and risk-taking behaviour to a greater extent than during any other life period (Gardner & Steinberg, 2005). Many studies have confirmed that adolescents are involved in various types of risk-taking behaviours, which include socially unacceptable behaviours such as, violence, risky sexual behaviours, drug use and abuse, cigarette smoking, alcohol use and abuse, and dangerous driving (Cattelino et al., 2014).

In the Second South African National Youth Risk Behaviour Survey, Reddy et al. (2010) found that black African adolescents show the highest incidence of violence compared to other countries. Furthermore, males in South Africa are more prone to risk-taking behaviour than females are. It was found that, nationally, 37.5% of adolescents stated that they had had sex before. The survey revealed that 12.6% of adolescents had their first sexual encounter before the age of 14 years (Reddy et al., 2010). As seen from the statistics described above, risk-taking behaviour is common among South African adolescents; therefore, research that can aid in understanding the causes and dynamics of risk-taking behaviour is valuable.

Reddy et al. (2010) confirm that the three categories of risk-taking behaviour that require research and intervention in South Africa are violence, substance use, and risky sexual behaviour. In following this recommendation, the current study included these three types of risk-taking behaviour. In the Second South African National Youth Risk Behaviour Survey

(Reddy et al., 2010), gender differences regarding risk-taking behaviour were noted. Therefore, an investigation into gender differences also formed part of this study.

Research focussing on the aetiological factors of risk-taking behaviour often includes factors such as personality predispositions and environmental predictors (Feldstein & Miller, 2006). However, research studies rarely simultaneously examine social and community factors that contribute to risk-taking behaviour in adolescents (Amoateng & Kalule-Sabiti, 2013). Due to this, it is evident that there is a lack of South African research that focuses on risk-taking behaviour and the contextual factors affecting these behaviours (Amoateng & Kalule-Sabiti, 2013). This study intended to address this by investigating the prevalence of risk-taking behaviour in adolescents living in Mangaung (Free State, South Africa). The aim was to investigate the role of various systems (parents, peers, school, and community) in explaining to the incidence of risk-taking behaviour (violence, substance use, and risky sexual behaviour) among middle and late adolescent males and females. An ecological systems perspective was followed. The following research questions were investigated:

1. Are there significant differences in the risk-taking behaviour (violence, substance use, and risky sexual behaviour) of adolescent males and females?

2. Can a significant amount of variance in risk-taking behaviour be explained by parental, peer, school, and community systems?

1.2 Theoretical perspectives underpinning the study

In this study, adolescence was considered from a developmental perspective. Adolescence is the stage of life between childhood and adulthood, the bridge between being a child and an adult (Whitmire, 2000). The term *adolescence* is difficult to define, as it is multifaceted. Chronological age and physical (e.g. puberty) and social markers (e.g. social and emotional independence) are considered when defining this developmental period. Adolescence is a developmental stage between the ages of 10 years and the early twenties. Adolescence begins with the onset of puberty and is accompanied by various changes in the physical, social, and emotional domains (APA, 2002; Whitmire, 2000).

Risk-taking behaviour is defined as behaviour in which individuals engage that can have potentially harmful consequences. Some consequences include severe injury or loss related to self and others, legal implications, or long-term effects (Boyer, 2006). According to Gardner and Steinberg (2005), adolescence is one of the stages in life during which individuals engage in reckless, thrill-seeking, and risk-taking behaviour to a greater extent than during any other life period. Thus, adolescents engage in these behaviours more than adults do (Gardner & Steinberg, 2005).

In this study, violence, substance use, and risky sexual behaviour were considered as forms of risk-taking behaviour. Violence as a form of risk-taking behaviour can be defined as "the intentional use of physical force or power, threatened or actual, against oneself, another person, a group or community that either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment or deprivation" (The World Health Organisation, 2002, p. 4.). Substance use, when considered as risk-taking behaviour (substance abuse), refers to patterns of intoxication, as well as the excessive use of a substance that causes marked distress and interferes with a person's social, occupational or academic functioning (Barlow & Durand, 2009). Finally, risky sexual behaviour is defined as the engagement in sexual encounters at a young age, no or inconsistent use of contraceptives, and/or engaging in sexual encounters with multiple partners (Irwin, Igra, Eyre, & Millstein, 2005).

Bronfenbrenner's bio-ecological systems theory (Bronfenbrenner, 1993) formed the theoretical basis for this research. Bronfenbrenner (1993) explains that an individual's environment interacts with the individual and the individual with the environment, while various environments influence one another concurrently (Bronfenbrenner & Morris, 2006; Leonard, 2011). Bronfenbrenner's basic assumption is that humans cannot be understood in isolation, but must be regarded in their context of relationships with the environment (Bronfenbrenner, 1976).

Bronfenbrenner proposed five layers of systems that aid and direct human development (Guhn & Goelman, 2011). The microsystem is explained as individuals' inner circles, which are settings with which individuals have direct, face-to-face relations with important persons (Bronfenbrenner, 1979; Leonard, 2011). In the microsystem, the focus is on individuals' families, friends, neighbourhoods, and religious groups (Hoffman & Kruczek, 2011). The mesosystem refers to the connections and continuous interactions between microsystems (Leonard, 2011). These connections include relationships that exist between individuals'

families and schools, families and peers, and families and neighbour relationships (Hoffman & Kruczek, 2011). The exosystem represents the larger social system that is external (Johnson, 2008; Leonard, 2011). Exosystems consist of the networks or systems that indirectly influence individuals, such as neighbourhoods, individuals' larger community, health care systems, school structures and the mass media (Hoffman & Kruczek, 2011). The macrosystem is the outmost layer of the bio-ecological systems theory and comprises the overarching pattern of values, belief systems, lifestyles, opportunities, customs, and resources embedded in the various systems (Bronfenbrenner, 1979; Hoffman & Kruczek, 2011). The final layer of this model, the chronosystem, broadens the environment into a third dimension and represents a time-based dimension that affects the operation of all levels of the ecological systems (Leonard, 2011).

Adolescents' micro- and mesosystems include their interpersonal relationships and social groupings or networks (including parental, peer and school systems) with which adolescents have a continuing personal and social relationship (Hoffman & Kruczek, 2011; Leonard, 2011). Adolescents' exosystems include their communities, religions, cultures and the laws governing their countries (Johnson, 2008). The exosystems and macrosystems are the most distal influences on adolescent development (Hersen, Thomas, & Ammerman, 2006). The chronosystem includes international trends and general changes in South Africa that affect adolescent risk-taking behaviour.

1.3 Overview of the research design and methods

For the purpose of this research study, a quantitative approach was used to explore the factors affecting risk-taking behaviour in middle and late adolescent males and females from a bio-ecological systems perspective. Furthermore, a non-experimental research approach that was descriptive in nature was followed. Correlational and criterion group designs were followed (Price, 2012; Sousa, Driessnack, & Mendes, 2007).

This research focussed on black middle and late adolescents in the Mangaung area in the Free State Province of central South Africa. Participants were recruited from four English-medium high schools. In this study, various ethnic groups such as Sesotho, Setswana and isiXhosa were included. The study included male and female participants who met the specific criteria set for this study. The non-probability, convenience sampling method was employed in this study.

Data were collected using a self-report battery that included a biographic questionnaire, an adapted and shortened version of the Youth Risk Behaviour Survey (YRBS) (to measure violence, substance use, and risky sexual behaviour), and a questionnaire compiled by Amoateng and Kalule-Sabiti (2013) (to measure contextual factors, namely parental, peer, school, and community systems).

The reliability of the measures for this particular sample was determined by using Cronbach's alpha coefficient. Gender differences were analysed by using multivariate analyses of variance (MANOVAs), followed by one-way analyses of variance (ANOVAs). Standard multiple regression analysis (Aron, Aron, & Coups, 2009) was implemented to determine the amount of variance in risk-taking behaviour (including violence, substance use, and risky sexual behaviour) that can be explained by the various contextual factors (namely parents, peers, school, and community).

To conduct his research, ethical principles were adhered to. Permission was obtained from the various parties involved in the research, namely the Department of Education, the Faculty of the Humanities of the University of the Free State, and principals of the participating schools, to conduct the research. Other ethical considerations taken into account during the research were justice, voluntary and informed consent, confidentiality, anonymity, non-maleficence, and the competence of the researcher.

1.4 Delineation of chapters

Chapter 1: The aim of this chapter is to provide an outline of the entire research study. In this chapter, the necessity for conducting research on risk-taking behaviour during adolescence and contextual factors influencing it is highlighted. Emphasis is placed on the concepts of adolescence, risk-taking behaviour, and Bronfenbrenner's (1993) ecological systems perspective. The chapter includes an overview of the research design and methods employed in the study.

Chapter 2: In this chapter, a review of existing literature relating to risk-taking behaviour during adolescence is provided. The constructs *adolescence* and *risk-taking behaviour* are defined, explored, and discussed in the context of South Africa. The prevalence and types of risk-taking behaviour are also discussed and detailed.

Chapter 3: Bronfenbrenner's bio-ecological systems theory is discussed in this chapter, as it is the theoretical underpinning of the current study. The theory is described from its original development, followed by an in-depth explanation of the five layers (micro-, meso-, macro-, exo-, and chronosystem). The influence of each of these systems on adolescents' development is emphasised.

Chapter 4: The aim of this chapter is to give an accurate description of the methodology used in performing the research. The chapter focuses on the research design, sampling, data collection, data analysis, and ethical considerations of the study.

Chapter 5: In this chapter, the results obtained in the study are provided. Following the results, is a discussion of the results with possible explanations of the findings as they relate to the two research questions.

Chapter 6: The aim of this chapter is to provide a conclusion of the research study. This chapter focuses on the significant contributions and limitations of the study, as well as recommendations for further research.

1.5 Chapter summary

In this chapter, the aim was to provide an outline of the entire research study. The context, rationale, and theoretical underpinning of the study were presented. A discussion of the research design and methods applied in the study was included. Finally, the chapter contained a description of the delineation of the chapters as set out in this study and chapter summary.

CHAPTER 2

Adolescent Risk-taking Behaviour

Adolescence is regarded as an important and critical developmental period during a person's life. Risk-taking behaviour often characterises this developmental period. The aim of this chapter is to provide an overview of adolescent risk-taking behaviour. In the chapter, adolescence is defined, and the stages, domains, and tasks of development during adolescence are explained. Next, risk-taking behaviour is defined, and the types of risk-taking behaviour are discussed. The chapter contains an explanation of adolescent risk-taking behaviour in the South Africa context and concludes with a chapter summary.

2.1 Defining adolescence

Adolescence is the life phase between childhood and adulthood, described as the bridge between being a child and an adult (Whitmire, 2000). The term *adolescence* is difficult to define because it is multifaceted and numerous definitions exist for this life phase. The difficulty is intensified by the fact that individuals experience this period differently, depending on their unique physical, emotional, and cognitive development (Hardman et al., 2012). Furthermore, a variety of factors, such as legal criteria, chronological age, and physical or social markers, is considered when defining this development period.

The laws that set out the minimum age of participation in certain activities reserved for adults, such as voting, marriage, property ownership, and alcohol consumption, differ from country to country. Most countries would regard people who are allowed to participate in these activities as adults; therefore, the legal age limit for adolescence is set accordingly (UNICEF, 2011). In South Africa, the law regards anyone above 18 years as an adult. Individuals above the age of 18 years can participate in the activities mentioned above and accept their social responsibility regarding these (Children's Act No. 38 of 2005).

Adolescence can also be defined in terms of chronological age. The World Health Organisation (WHO) (2015) describes adolescence as the life stage of development that occurs following childhood and before adulthood between the ages of 10 and 19 years. Santrock (2009) refers to the ages of adolescence as starting at more or less 10 to 12 years of age and ending at 18 to 21

years of age. Newman and Newman (2011) argue that adolescence ranges from 12 to 24 years, with an early adolescent stage (12 to 18 years) and a late adolescent stage (18 to 24 years). When defining adolescence in terms of chronological age, one similarity exists between the various definitions above, and that is that adolescence is linked to the second decade of a person's life (Hardman et al., 2012).

Adolescence can be defined in terms of biological and social markers. Louw, Louw and Ferns (2007) define adolescence as a life stage that starts with the beginning of puberty and ends when an individual accepts the social tasks of being an adult. Various definitions of adolescence emphasise biological maturity that begins with puberty. These definitions are also in line with the origin of the term *adolescence*, in Latin "adolescere", meaning to grow or mature (Paludi, 2002). According to Santrock (2009), adolescence is a developmental period that starts with the onset of puberty, which is initiated by rapid physical changes (including increases in height and weight) and followed by the development of secondary sex characteristics and growth of body hair (Morgan & Huebner, 2009; Santrock, 2009). During adolescence, there is also cognitive maturation (Shaffer, 2001), personality development (formation of identity) (Crocetti, Sica, Schwartz, Serafini, & Meeus, 2013) and social changes (emphasis on peer relationships, movement away from parents) (Santrock, 2009) that co-occur during this life stage.

Adolescence can be divided into three substages: early adolescence (ages 10 to 14 years), middle adolescence (ages 15 to 17 years) and late adolescence (from 18 years to early twenties) (Blum, Astone, Decker, & Mouli, 2014; Perkins, 2001)

During early adolescence, identity starts to develop. Adolescents begin to strive for independence and they will start to show more preference for friends and less affection towards parents (Ozretich & Bowman, 2001). Rapid physical changes (e.g. the development of secondary sex characteristics) are noticeable during this stage (Morgan & Huebner, 2009). Early adolescents often start experimenting with their sexuality and bodies (e.g. masturbation) (Ozretich & Bowman, 2001; Perkins, 2001). During early adolescence, there is also an increase in experimentation with drugs and alcohol, and adolescents show an increase in risk-taking behaviour (Spano, 2004).

During middle adolescence, adolescents become more involved with friends while withdrawing from their parents. During middle adolescence, adolescents strive for independence (Ozretich & Bowman, 2001; Perkins, 2001). They are extremely focussed on their appearance, and concerns in this regard may arise. During this stage, adolescents who associate with deviant peers will start showing more antisocial behaviour (Ozretich & Bowman, 2001). Physical changes and growth for females slow down during middle adolescence while males show continued height and weight gain (Perkins, 2001). During middle adolescence, sexuality and sexual orientation become more prominent than in early adolescence, and adolescents can show passion and love although most relationships are brief in nature (Spano, 2004).

During late adolescence, most adolescents' identities have been stabilised and they are physically fully developed, although males may continue to grow in height and weight. During late adolescence, relationships become more serious than before, and adolescents develop the capacity for tender and sensual love, most likely because their sexual identities have been formed (Spano, 2004). Risk-taking behaviour declines towards the end of late adolescence when individuals can assess the consequences of their risk-taking behaviour more competently (Bhandarkan, 2006; Perkins, 2001).

From the discussion above, it is clear that the following aspects are important to consider when defining adolescence: It is a developmental stage between the ages of 10 years and the early twenties. It starts with the onset of puberty and is accompanied by various changes in the physical, social and emotional domains (APA, 2002; Whitmire, 2000). These domains of adolescent development are discussed next.

2.2 Domains of adolescent development

Adolescence is a critical life stage during which adolescents undergo various rapid changes and have to master various tasks. The development that takes place includes physical development, cognitive development, personal/identity development, and social development (Dunn & Craig, 2013; Santrock, 2009).

2.2.1 Physical development

Adolescence is a life period during which individuals experience remarkable physical growth and physiological changes. These biological changes and growth that occur during adolescence are universal, although the exact timing and psychological effects are different across cultures and historical periods (Hardman et al., 2012)

During early adolescence, growth spurts occur as individuals experience rapid physical growth. During this time, males and females also mature sexually (related to puberty) (Santrock, 2009). During this growth spurt, there is a dramatic increase in height and weight for both males and females (Morgan & Huebner, 2009; Santrock, 2009). This increase occurs about two years earlier in females than in males (Santrock, 2009). Weight gain in males is mostly due to increases in muscle development, and in females, it is due to increases in body fat (Morgan & Huebner, 2009).

Secondary sex characteristics also appear and develop during adolescence, mostly due to hormonal changes (Santrock, 2009). Secondary sex characteristics include the growth of pubic and underarm hair in males and females. Females develop breasts and their menstrual cycle starts. Males have penis growth and enlargement of the testicles and scrotum, as well as the growth of facial hair (Mannheim, 2013). Both males and females experience an increase in production of oil and sweat that can lead to acne or skin problems (Morgan & Huebner, 2009).

This rapid physical and sexual maturation is initiated by the secretion of growth hormones (somatotrophins) and sex hormones (gonadotrophins). These hormones stimulates the gonads to secrete male or female hormones (Santrock, 2009). The hormones oestrogen in females and testosterone in males, in collaboration with androgens, are responsible for the development of primary sex characteristics (sex organs needed for reproduction) and secondary sex characteristics (unique male and female characteristics) (Louw et al., 2007). It is important to note that oestrogen and testosterone are both present in males and females. Testosterone dominates in male pubertal developmental and oestrogen dominates in female pubertal development (Richmond & Rogol, 2007).

The physical changes occurring in adolescents affect adolescents psychologically. Body image and perception is some of the psychological effects of physical changes. Girls often have more negative self-images than boys have. Usually, females who perceive their body appearance as more positive engage in less risk-taking behaviour (Santrock, 2009).

Together with the physical changes that occur during adolescence, the brain also develops and grows (Dunn & Craig, 2013). Giedd (2004) found that the brain of an adolescent is not fully developed and that it continues to grow and develop into a person's early 20s. The most import structural part of the brain that changes during adolescence is the prefrontal cortex. The prefrontal cortex is responsible for advanced thinking processes such as planning, emotional regulation, and impulse control. During adolescence, the brain undergoes various structural changes. Brain maturation tends to happen from the back to the front; therefore, the pre-frontal cortex of the brain is only fully developed around the early to middle 20s (Winters & McLellan, 2004). Concurrently, with the brain development and growth, adolescents start developing their way of thinking and experience various cognitive changes (Louw et al., 2007).

2.2.2 Cognitive development

According to Piaget (1952), adolescents are in the formal operational stage of cognitive development, starting from approximately 11 years of age. This formal operational stage continues into adulthood. During this phase, adolescents move from thinking only about concrete and real occurrences to more abstract and scientific thinking (Piaget, 1952; Santrock, 2009).

One of the main characteristics of the formal operational period is that adolescents begin using hypothetical-deductive reasoning, meaning they develop their ability to reason from the general to the specific (Shaffer, 2001). Adolescents can begin to solve problems by not depending solely on previously learned facts, but also by generating hypotheses. They develop their propositional thinking ability, which means they begin to reason about propositions without referring to real-life circumstances (Hardman et al., 2012).

Furthermore, for the first time, adolescents gain awareness of their ability to think about thinking, referred to as metacognition. Idealism and possibilities often complement

metacognition. This emerging ability makes it viable for adolescents to compare themselves with others (Santrock, 2009).

Elkind (1967) extended Piaget's theory by using two components to describe egocentrism (the increased self-consciousness experienced during adolescence). The first is the imaginary audience, which is the perception adolescents have that others are as fascinated by them as they are with themselves. Adolescents think they are constantly being watched or are "on stage" and act in specific ways to get attention (Santrock, 2009). The second component, the personal fable, represents the sense of uniqueness and indestructibility of adolescents' experience. Adolescents frequently believe that bad things cannot happen to them and that others do not understand them (Dunn & Craig, 2013). Owing to adolescents' cognitive development, they might engage in risk-taking behaviour such as having sexual intercourse without any protection or using of drugs without truly realising the risk associated with such behaviour (Santrock, 2009).

From a cognitive perspective, it is assumed that adolescents are not sufficiently able to assess the risks, advantages, and disadvantages of engaging in risk-taking behaviour. Although adolescents are maturing cognitively, some individuals still struggle with social-cognitive immaturity (Alberts, Elkind, & Ginsberg, 2006). Furthermore, an understanding of egocentrism can also explain adolescents' vulnerability to risk-taking behaviour. Elkind (1967) suggests that the personal fable leads to a sense of invulnerability with a greater tendency for engagement in risk-taking behaviour. Adolescents think that nothing 'bad' can or will happen to them.

2.2.3 Personality/identity development

Many scholars describe adolescence as a time of intense emotions and roller-coaster ups and downs, marked with conflict (Arnett, 2000; Crocetti, Scrignaro, Sica, & Magrin, 2012; Op de Beeck, 2009). Because adolescents develop physically and cognitively, they have to start considering adulthood roles. To make decisions regarding who they want to be, adolescents have to develop a sense of identity (Shaffer, 2001). Various researchers agree that the formation of an identity is one of the main psychological tasks during adolescence (Crocetti et al., 2013; Erikson, 1986; Meeus, Van de Schoot, Keijsers, & Branje, 2012).

Various researchers have explained personality development during adolescence. For instance, Erikson (1986) states that adolescents are in a stage of identity versus role confusion (De Jong, 2003). According to Erikson, identity formation involves three major tasks, namely career choice, sexual identity, and the development of beliefs and values (Hardman et al., 2012). He explained that adolescents thus experiment, investigate, and question as part of their normal development. He named this period the psychosocial moratorium, where society allows the adolescents to explore and experiment (Erikson, 1986). Erikson explains that adolescents can go through a period of identity confusion, where they struggle to integrate various roles in order to reach the ego-synthesis of fidelity (Erikson, 1986; (Louw et al., 2007; Santrock, 2009).

Marcia (1966) expanded on Erikson's idea of identity development and introduced four statuses of identity development (Crocetti et al., 2012). Identity diffusion is characterised by a lack of exploration and a lack of commitment towards an identity. Identity foreclosure is characterised by a formal commitment towards an identity without adequate exploration. Identity moratorium is characterised by exploration with different types of identity without any formal commitments. The final stage, identity achievement, is characterised by exploration that is followed by a formal commitment. In other words, the adolescent has explored and then made a commitment (Meeus et al., 2012).

The motivation behind adolescents' involvement in risk-taking behaviour is understood better when focussing on the idea of identity development as described by Erikson (1986) and Marcia (1966). Often, identity exploration is associated with an increase in experimentation and risk-taking. Through experimentation, adolescents develop a sense of identity. When adolescents successfully develop their sense of identity about their careers, sexual identities, and values, they are more likely to avoid major risk-taking. Individuals who do not have a fully developed state of identity (diffused state of identity / role confusion), may be more prone to association with drug use and other risk-taking behaviour (National Research Council [U.S.] and Institute of Medicine [U.S.], 2011).

2.2.4 Social development

Social development is another domain of adolescents' development that must be considered in relation to physical, cognitive, and identity development. Social development is significant since all other developmental processes occur within individuals while the individuals are

engaging in their social environments (Santrock, 2009). Parents and peer groups play a major role in adolescent development (Geldard & Geldard, 2010; Santrock, 2009; Wang et al., 2014b)

Conflict between adolescents and parents increase as individuals reach puberty (Shaffer, 2001). Conflict between adolescents and parents is considered a normal developmental result of a combination of physical changes (hormonal influences), cognitive changes that lead to more questioning, social changes occurring, and changing family dynamics (Geldard & Geldard, 2010).

Conflict with parents can be considered constructive, as the negotiation and disputes enable adolescents to move away from being dependent on their parents, towards becoming autonomous adults (Shaffer, 2001). However, when adolescents challenge to obtain more autonomy, parents exert more control, which may lead to more defiant behaviour during adolescence (Santrock, 2009).

Friendships and peer groups also influence adolescents' development (Louw et al., 2007; Santrock, 2009; Shaffer, 2001; Wang et al., 2014b). During adolescence, individuals have an intense need for belonging to a peer group (Cheng & Furnham, 2002). Sullivan (1953) regards friendship as significant. He alleges that adolescents move towards their friends and place more importance on them. Sullivan argues that adolescents have basic social needs, such as the need for care, social acceptance, intimacy, and sexual relations. The fulfilment of all these needs has an influence on the adolescents' well-being (Sullivan, 1953).

Friendships during adolescents become more intimate and directed towards shared psychological attributes such as shared interests, values and beliefs (Cheng & Furnham, 2002). Adolescents' friendships contribute to their development by protecting them against stressors they experience. Friendships ensure that adolescents do not experience isolation, increase self-awareness, and promote empathy (Louw et al., 2007).

The development of romantic relationships and dating is another important social developmental task during adolescence (Collins, 2003; Furman, 1999; Roisman, Booth-LaForce, Cauffman, & Spieker, 2009). Adolescents spend much time with the opposite gender. This strengthens adolescents' sense of independence, allows for company, and increases communication and social skills (Santrock, 2009).

The need for acceptance and belonging can be a trigger for risk-taking behaviour during adolescence (Cheng & Furnham, 2002). Adolescents have a strong need for affiliation and acceptance in a group, which makes them vulnerable to peer influence. The rising conflict between parents and adolescents as adolescents strive for autonomy is another factor that contributes to risk-taking behaviour (National Research Council [U.S.] & Institute of Medicine [U.S.], 2011). The more adolescents and parents disagree, the more adolescents find acceptance with peers. The more adolescents associate with deviant peers, the higher the chances of involvement in risk-taking behaviour are.

The school environment has another strong influence on individual development. The school environment contributes to development, as adolescents spend most of their time there. The school setting contributes to social development, as it includes connections to peers and teachers, and adolescents' perceptions about education are also shaped and adapted in this environment (Negru & Baban, 2009). Schools are essential for academic purposes, as they stimulate intellectual and cognitive development. In the school environment learners can develop social, psychological, and physical well-being (Govender et al., 2013). Positive perceptions about the school environment have been linked with less risk-taking behaviour (Klein, Cornell, & Konold, 2012). McNeely, Nonnemaker, and Blum (2002) found that adolescents who experience a sense of connectedness to adults at schools are less likely to use substances, suffer from emotional pain, attempt suicide, and become involved in socially unacceptable and risk-taking behaviour.

The community or neighbourhood to which individuals belong is an important social context that affects family functioning and,, therefore, individual functioning and development (Amoateng & Kalule-Sabiti, 2013; Cavazos-Rehg et al., 2009). Liechty (2008) conducted a study that explored the influence of community upon the development of self. The finding of this study showed that communities shape individual development through shared and common values. Furthermore, communities also influenced development through providing a larger context in which families and family roles were rooted (Liechty, 2008). Disadvantaged communities are a risk factor for involvement in risk-taking behaviour. The term *disadvantaged communities* is used for neighbourhoods with a high level of poverty, unemployment, and crime (Swahn & Bossarte, 2009). The more resources a community has (for example, activities for

children, and good role models), the lower the risk-taking in that community is (Youngblade, Curry, Novak, Vogel, & Shenkman, 2006).

From the above-mentioned, it is evident that adolescent development is influenced by various social factors, including parents, peers, school, and community (Wang et al., 2014b). In Chapter 3, the influence of these is discussed in more detail.

2.3 Defining risk-taking behaviour

Risk-taking behaviour is defined as behaviour in which individuals engage in that can have potentially harmful consequences. Some consequences include severe injury or loss related to self and others, legal implications, or negative long-term effects (Boyer, 2006). Risk-taking behaviour can have undesirable consequences for the overall development and well-being of an individual, or might hinder individuals from attaining successes and optimal development. Risk-taking behaviour includes behaviour that will cause instant physical injury (e.g. fighting) and behaviour with long-term or indirect adverse effects (e.g., substance use and smoking) (De Guzman & Pohlmeier, 2014).

Moore and Gullone (1996) define adolescent risk-taking behaviour as behaviour that has potentially adverse consequences but that is performed because of perceived rewards. When the positive outcomes are more than the possible negative outcomes, the behaviour is not considered risky. However, if the possible negative outcomes are far more than the positive outcomes, the behaviour can be considered dangerous or risky (Gullone, Moore, Moss, & Boyd, 2000).

Risk-taking behaviour is common during adolescence. According to Gardner and Steinberg (2005), adolescence is a stage in life characterised by individuals' engagement in reckless, thrill-seeking, and risk-taking behaviour. Such behaviour occurs to a greater degree during adolescence than during any other life period. Thus, adolescents engage in these behaviours more than adults do (Gardner & Steinberg, 2005). Risk-taking behaviour performed by adolescents can disrupt their normal development or prevent them from engaging in usual activities for their age group. For example, teen pregnancy can prevent adolescents from experiencing usual adolescent events, such as matriculating or developing close friendships with peers (De Guzman & Pohlmeier, 2014).

Risk-taking cannot be interpreted and studied apart from an individual's developmental context. Behaviour that is considered harmful during early adolescence may be less harmful during later adolescence (Parsons, Siegel, & Cousins, 1997). From a developmental perspective, risk-taking can be regarded as normative and adaptive for healthy psychological development (Baumrind, 1987; Özmen, 2006). Baumrind (1987) notes that there are two types of risk-taking behaviour in adolescence: adaptive and pathological risk-taking. Adaptive risk-taking behaviour is exploratory and experimental in nature and can lead to increased self-esteem and stress tolerance. The motivation behind adaptive risk-taking behaviour is usually secondary gain, in that individuals perceive some interpersonal benefit or gain. An example of adaptive risk-taking behaviour during adolescents would be the use of a substance to gain social status among peers. Pathological risk-taking behaviour is habit forming and destructive and mostly does not have any secondary gain, also referred to as secondary handicap. Thus pathological risk-taking behaviour often affect individuals' interpersonal spheres negatively (Baumrind, 1987).

2.4 Types of risk-taking behaviour

Several types of risk-taking behaviours have been of particular interest to professionals and researchers and have been studied extensively due to their high prevalence during adolescence and negative effect on society (De Guzman & Pohlmeier, 2014). Although there are no universally accepted categories for risk-taking behaviour, various researchers have attempted to structure or categorise the various types of risk-taking behaviour. Lavery, Siegel, Cousins, and Rubovits (1993) group 23 types of risky behaviours into five categories, namely illegal (e.g., theft, drunk driving, vandalism), vehicle (e.g., driving with strangers, not wearing a seat belt, travelling with a drunk driver), health (e.g., having unprotected sex, bingeing/purging, crash dieting), status (e.g., running away from home, cheating during tests, fights with peers, skipping school), and drug use (e.g., drinking alcohol, using other legal/illegal substances) (Gullone et al., 2000). In the Youth Risk Behaviour Survey, six categories of risk-taking behaviour are considered: (1) behaviour that contributes to unintentional injuries and violence, (2) tobacco use, (3) alcohol and other drug use, (4) sexual behaviour that contributes to unintended pregnancy and sexually transmitted diseases, (5) unhealthy dietary behaviour, (6) physical inactivity, including obesity and asthma (Centers for Disease Control and Prevention, 2014; Coleman, Wileyto, Lenhart, & Patterson, 2014).

For the purpose of this study, the three categories of risk-taking behaviour included for further discussion are violence, substance use, and risky sexual behaviour. Inclusion of these categories is based on confirmation by Reddy et al. (2010) that these are the most prominent categories of risk-taking behaviour that require further research and intervention in South Africa.

2.4.1 Violence-related behaviour

Definitions of violence found in the literature are diverse. Often, the terms *violence* and *aggression* are used interchangeably. Aggression is a broad term that includes firm, invasive, or confronting behaviour, and violence is regarded as a subcategory of aggression (Van der Merwe & Dawes, 2007). The World Health Organisation (2002, p. 4.) defines violence as "the intentional use of physical force or power, threatened or actual, against oneself, another person, a group, or community that either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment or deprivation." Violence includes a broad range of behaviour, including child abuse, gang-related fights, hate crimes, spouse battering, sexual assault, suicide, and terrorism (Fraser, 1996).

Violence is considered second to vehicle accidents as the primary cause of death among people of 15 to 34 years of age (De Guzman & Pohlmeier, 2014). In the United States (US), 8.1% of learners have been involved in physical fights in a twelve-month period, with fighting showing a higher incidence among males than among females. Furthermore, 10.3% of learners have been hit, slammed into something, or injured with an object on purpose by someone they were dating. The prevalence of dating violence was higher among females than among males (Centers for Disease Control and Prevention, 2013b).

Various factors can lead to violent behaviour during adolescence. Individual factors that have been found to correlate with violence are hyperactivity, impulsivity, and poor academic performance (Herrenkohl et al., 2000; Massetti et al., 2011). Furthermore, the early onset of violence and aggression during childhood is often a predictor of violence during adolescence. Individuals with little guilt or remorse, a history of substance abuse, and attitudes supporting drug abuse and violence are more likely than the general population to become violent (Van der Merwe & Dawes, 2007). According to Massetti et al. (2011), adolescents who affiliate with deviant peers and gang members are more likely to engage in violent behaviour themselves.

The family also plays a role in violent behaviour of adolescents. Violent parents, family conflict, and harsh or inconsistent parenting (including severe punishment) can be predictors of violent behaviour during adolescence (Herrenkohl et al., 2000; Massetti et al., 2011; Van der Merwe & Dawes, 2007). Emotional abuse, poor limit setting, and parental monitoring have also been identified in the aetiology of violence (Massetti et al., 2011). On a community level, risk factors for violent behaviour during adolescence include community violence, poverty, availability of drugs, alcohol and firearms, as well as high crime rates in the neighbourhood (Massetti et al., 2011; Van der Merwe & Dawes, 2007).

According to McAra and McVie (2010), there is a gender difference in engagement in violent activities. Males and females engage in violence for different reasons. Research by McAra and McVie (2010) showed that females who were sexually active at a young age were more likely to be violent. Furthermore, family turbulence and deprivation at the familial level significantly contributed to violent behaviour by females. In males, violence was linked to aspects of risk such as impulsivity, association with violent peers, poor parental monitoring, and previous victimisation by adults (McAra & McVie, 2010).

Violent behaviour can also be explained by examining the theory of learned behaviour, which provides another explanation for the causes of violent behaviour. Behaviour can be learned through observation, imitation, direct experience, or rehearsal. Adolescents who see their friends, parents, or other individuals in their communities engaging in violence, are more likely to imitate their behaviour, or use violence as a coping mechanism (Herrenkohl et al., 2000).

2.4.2 Substance-related behaviour

Substance-related behaviour (including use of cigarettes, alcohol, and other drugs) is defined as the intake of psychoactive substances. The use of substances in restrained quantities that does not extensively impede with social, educational, or occupational functioning could be regarded as normal, and is usually not regarded as risk-taking behaviour (Sadock, Kaplan, & Sadock, 2007). Examples of normal substance use include the consumption of a cup of coffee in the morning before work, smoking a cigarette, and enjoying a drink with a friend. Substance use also includes the irregular and restrained intake of illegal drugs like dagga, cocaine, amphetamines, or barbiturates (Barlow & Durand, 2009).

Substance abuse refers to patterns of intoxication and the excessive use of a substance that causes marked distress and interferes with a person's social, occupational, or academic functioning (Barlow & Durand, 2009). The interference can include fights with family on the misuse of substances, legal problems such as arrests for driving under the influence, and issues concerning a person's work or school performance (Sadock et al., 2007). The risk involved in substance use is that it often spirals into substance abuse – especially with adolescents. Furthermore, activities in which adolescents engage while under the influence of substances, such as having unprotected sex or driving under the influence of alcohol, pose a threat that can lead to injury or even death.

According to the Youth Risk Behaviour Survey (Centers for Disease Control and Prevention, 2013b), 41.1% of learners in the US have tried cigarette smoking. Among the learners who smoke cigarettes, 8.6% smoke more than ten cigarettes per day, with smoking among males being more prevalent than among females (Centers for Disease Control and Prevention, 2013b). In the US, 66.2% of learners have had at least one drink of alcohol during their life, and 18.6% of these learners had drunk alcohol for the first time before the age of 13 years. A noteworthy amount of 6.1% of learners also drank more than ten drinks in a couple of hours in a 30-day period, with the prevalence higher among males than among females. Use of marijuana is also common, as 24.4% of learners reported the use of marijuana during a 30-day period (Centers for Disease Control and Prevention, 2013b). Various international statistics indicate that males reported higher levels of substance use than females did (Johnston, O'Mallaey, Bachman, & Schulenberg, 2010; Substance Abuse and Mental Health Services Administration, 2010).

Factors that make adolescents more vulnerable to substance use include genetic predispositions, stressful life events, socio-economic status, and peers (Nash, McQueen, & Bray, 2005; National Institute on Drug Abuse, 2014; Shane, Diamond, Mensinger, Shera, & Wintersteen, 2006; U.S. Department of Health and Human Services, 2000). Adolescents with a history of physical and/or sexual abuse, are more prone to substance use disorders (Shane et al., 2006).

Various other risk factors play a noteworthy part in the development of substance use and related behaviour. Prenatal experience with alcohol or other drugs, absence of parental supervision or monitoring and relationship with drug-using peers can contribute to substance use (Nash, McQueen, & Bray, 2005; U.S. Department of Health and Human Services, 2012). Peer acceptance also contributes to substance use. Adolescents may be more prone to substance

use if they perceive from their peers or parents that it is normal and acceptable to use substances (U.S. Department of Health and Human Services, 2000). Other reasons why adolescents engage in substance use are to cope with their emotional pain, to feel better, and as part of normal experimentation (National Institute on Drug Abuse, 2014).

Mass media is another factor that encourages substance use, as the media often portrays substance use as a normal activity and thus promotes it in adolescents (Escobedo, Reddy, & DuRant, 1997). Other contributing factors include personal beliefs about substances, lower social economic status, lack of parental support, accessibility and availability of substances, low self-esteem, and low levels of academic performance (U.S. Department of Health and Human Services, 2000, 2012).

2.4.3 Risky sexual behaviour

Risky sexual behaviour is defined as the engagement in sexual encounters at a young age, no or inconsistent use of contraceptives, and/or engaging in sexual encounters with multiple partners (Irwin et al., 2005). These types of sexual behaviour can be regarded as risky behaviour, as they pose various health and mental threats to the individual engaging in such behaviours. Some of these health threats include contracting a sexually transmitted disease, unwanted pregnancies, financial strains due to having a baby, and socio-emotional problems (Nel, 1995).

In the US, 46.8% of learners have had sexual intercourse at some time during their lives, with 5.6% before the age of 13 years. Fifteen percent of learners have had sex with four or more persons during their life. Of the currently sexually active learners, 13.7% of learners have not used any form of contraceptive to prevent pregnancy. More females than males fail to use contraceptives (Centers for Disease Control and Prevention, 2013b).

Factors that contribute to risky sexual behaviour are substance use, violent home experiences, history of sexual/or physical abuse, poor parental control, lower education, and poverty. Substance use is a strong predictor of involvement in risky sexual behaviour. Adolescents who abuse drugs are more likely to find themselves in situations where they may engage in risky sexual behaviour or become victims of sexual crimes (Hall, Holmqvist, & Sherry, 2004). Witnessing domestic violence or being raised in a home where adolescents continuously

experience violence increases their risk to engage in risky sexual behaviour about threefold (Cole, 2002).

According to Lang et al., (2003) a history of sexual abuse or assault is another risk factor for involvement in risky sexual behaviour and substance use. Furthermore, peer pressure and the way in which the media portrays sex increase adolescents' vulnerability towards risky sexual behaviour (Louw et al., 2007).

From a developmental perspective, adolescents' rapid physical development, including the development of sex characteristics and secretion of sex hormones, together with increased interest in the opposite sex, leads to exploration of identities and relationships. Downing and Bellis (2009) indicate that early physical maturation is associated frequently with early sexual activity and unplanned pregnancies.

2.4.4 Other risk-taking behaviour

Other categories of risk-taking behaviour include behaviour that contributes to unintentional injuries, unhealthy dietary behaviour, and physical inactivity (Centers for Disease Control and Prevention, 2013b; Reddy et al., 2010).

Behaviour that contributes to unintentional injuries among adolescents includes injuries resulting from not taking safety measures, and reckless driving. An example is failure to wear a helmet on a bicycle, not wearing a seatbelt, driving with a drunken driver, and texting while driving (Centers for Disease Control and Prevention, 2013b). Unhealthy dietary behaviour refers to behaviour related to an unhealthy diet. A healthy diet provides adequate levels of vitamins, minerals, proteins, carbohydrates, and healthy fats from a variety of foods (Renee, 2014). Physical inactivity refers to not engaging in regular exercise. Regular physical activity in childhood and adolescence improves strength and stamina, aids in forming healthy bones and muscles, helps control weight, reduces anxiety and stress, increases self-esteem, and may improve blood pressure and cholesterol levels (Reddy et al., 2010).

The Centers for Disease Control and Prevention (2010) report that, in the 2010 Youth Risk Behaviour Survey, 56% of adolescents who died in vehicle accidents were not wearing seatbelts (De Guzman & Pohlmeier, 2014). In the US, 13.7% of learners do not eat breakfast regularly,

6.6% of learners do not eat vegetables regularly, and 5% of learners do not eat fruit regularly. A recommendation is that adolescents should engage in at least 60 minutes of physical activity daily. In the 2013 Youth Risk Behaviour Survey of the US, it was found that only 27.1% of high school learners engaged in 60 minutes of exercise daily, and that 15.2% of learners do not participate in any physical activity (Centers for Disease Control and Prevention, 2013b).

Some factors are considered risk factors for the above-mentioned risk-taking behaviours. The family environment and parents' attitudes towards safety and health are important contributors to adolescent dietary behaviour and use of safety precautions. Peer influence can be considered important determinants in adolescents selecting and eating acceptable food, as well as taking safety precautions (e.g. driving below or above the speed limit) (Baker, Little, & Brownell, 2003).

The media also influence eating habits, as they often portray a thin image as the norm, leading to body dissatisfaction and eating disorders in women. Concern about body image and the sociocultural and economic context will also affect dietary behaviour and exercise (Mallick, Ray, & Mukhopadhyay, 2014).

2.5 The South African context and adolescent risk-taking behaviour

The estimated youth population in South Africa is 9 747 000, of which 70% are between the ages of 16 and 20 years of age (Reddy et al., 2010). This population of adolescents in South Africa frequently take part in various high-risk activities.

Researchers found that South African adolescents use substances such as tobacco, alcohol, and drugs, have unprotected sex, have unhealthy eating habits, and are both offenders and victims of violence (Amoateng, Barber, & Erickson, 2006; Amoateng & Kalule-Sabiti, 2013; Flisher, Reddy, Muller, & Lombard, 2003; Madu & Matla, 2003; Reddy et al., 2010; Sharp & Dellis, 2010).

In many respects, risk-taking behaviour among South African adolescents is comparable to that reported in other countries throughout the world (Darroch, Singh, & Frost, 2001). The Second South African Youth Risk Behaviour study (Reddy et al., 2010) provides a variety of South African statistics regarding risk-taking behaviour among adolescents. According to this study,

the prevalence of violence was higher in South Africa than it was in the US. A total number of 31.3% of learners in South Africa were involved in one or more physical fights in a six-month period, with a higher prevalence among males than among females.

In the six months before the survey, 15.1% of learners reported having been hit, smacked (slapped), or physically hurt by their boyfriend/girlfriend. There was no significant variation in partner violence between males and females (Reddy et al., 2010). In Cape Town, South Africa, Kaminer, Du Plessis, Hardy, and Benjamin (2013) performed a study that assessed direct and indirect exposure to domestic, school, neighbourhood, and sexual violence among adolescents. Their results showed that 98.9% of learners had witnessed community violence, while 76.9% of learners had witnessed domestic violence. In this study, it was found that 58.6% of participants had been abused directly at their homes, and 75.8% reported exposure to violence at school.

When comparing substance use in South Africa to that of the US, South Africa has a lower prevalence rate. Almost one in three learners (29.5%) in South Africa has smoked cigarettes in his or her lifetime, with 5.8% of learners being frequent smokers. One in two learners in South Africa (49.6%) has drunk at least one drink of alcohol in his or her lifetime, and 28.5% have engaged in binge drinking on one or more days during a 30-day period. Males have higher rates for alcohol use than females have. A total of 9.7% of learners use dagga on one or more days in a period of 30 days (Reddy et al., 2010). In the Gauteng and Limpopo provinces, it was found that 50% of learners reported current alcohol use, with males having a higher prevalence than females (Weir-Smith, 2001).

With regard to risky sexual behaviour, 37.5%, South African learners have had sex during their lifetime, with 12.6% of learners having had sexual intercourse before the age of 14 years (Reddy et al., 2010). In a recent study by Amoateng, Kalule-Sabiti, and Arkaah (2014) in the North West province of South Africa, 47% of adolescent male participants reported that they had had sex before in their life, and 23% of females reported that they had had sex.

Although risk-taking behaviour in South Africa seems comparable to other countries, there are unique factors in the South African context that should be considered. Two factors that has been mentioned by Sharp and Dellis (2010) is transitional changes in South Africa and the collectivistic culture. These two factors will be discussed.

Firstly, after the change from Apartheid to a democratic country, rapid political, social, demographic, and economic transitions have been experienced (Finchilescu & Tredoux, 2010). These transitions affect adolescents as they have to adapt to new challenges and opportunities, such as a transforming education system (Glaser, 2010). Furthermore, many South African adolescents grew up in poverty and are still exposed to high rates of violence, HIV/Aids and unemployment (Brook, Brook, Zhang, Cohen, & Whiteman, 2002). The wider context of transition in the country inevitably influences risk-taking behaviour among South African adolescents.

Secondly, some researchers are of the opinion that black adolescents have a non-Western perspective and a culture that is more collectivistic than individualistic (Seekings, 2008). Collectivistic cultures place even emphasis on the social context and community. Eaton and Louw (2000) argue that risk-taking behaviour during adolescence must also be influenced by their communities, as communities set the boundaries for acceptable behaviour. Owing to this, adolescents in South Africa might be more prone to various kinds of risk-taking behaviour, as they are focussed on the individuals around them and make their decisions based on what other individuals in the community expect of them.

To conclude: South Africa is in a transition period moving from Apartheid towards a democratic country that creates a unique social context. This social context affects risk-taking behaviour during adolescence. Thus, it is evident that, to understand risk-taking behaviour during adolescence, the social context (including an individual's community, school, peers, and parents) should be considered.

2.6 Chapter summary

In this chapter, literature on adolescent development and risk-taking behaviour was explored. Furthermore, the chapter included a definition for risk-taking behaviour, and the prevalence of risk-taking behaviour during adolescence was discussed. The types of risk-taking behaviour and the prevalence of each of these globally and in South Africa were examined.

This chapter was concluded with a discussion of the South African context and the social effect the development and changes in the country have on adolescents.

CHAPTER 3

A Contextual Perspective on Adolescent Risk-taking Behaviour

In this chapter, the various contextual factors that influence adolescents' risk-taking behaviour are discussed. These influences are described from the bio-ecological systems perspective of Bronfenbrenner (1993). Firstly, an overview of the bio-ecological systems theory, with its various layers, is provided. Furthermore, the effects of the micro-, meso-, exo-, macro-, and chronosystem on adolescent risk-taking are discussed. Finally, the chapter includes a chapter summary.

3.1 Bronfenbrenner's bio-ecological systems theory

The term "systems" was introduced in the work of Emile Durkheim on social systems (Friedman & Allen, 2011). In the field of social work and psychology, Von Bertalanffy and Bronfenbrenner had the greatest influence on thinking about systems thinking (Laszlo & Krippner, 1998).

Von Bertalanffy (cited in Laszlo & Krippner, 1998) proposed the general system theory, focussing on systems as a whole, the relationships between systems, as well as interactions that systems had with one another. His focus was on the holistic and integrative exploration of phenomena and events (Laszlo & Krippner, 1998). Von Bertalanffy focussed on the linear cause-effect properties of a relationship to explain growth and change in living organisms. In his theory, he prioritised the interaction between parts and the linear relationship between parts (Friedman & Allen, 2011).

Bronfenbrenner studied human biological systems within their ecological environment (Friedman & Allen, 2011). Bronfenbrenner argued that Von Bertalanffy's general systems theory did not encapsulate the complex dynamics that take place in social systems (Rosa & Tudge, 2013). Bronfenbrenner referred to the ecological environment and noted that there are additional environmental factors in the social systems in which human beings function. This ecological environment is described as a set of nested structures, each within the other, like a set of Russian dolls (Bronfenbrenner, 1979). When explaining behaviour using a person's ecological environment, the historical and cultural factors surrounding individuals and their

biological make-up are important (Friedman & Allen, 2011). Bronfenbrenner suggests that individuals' upbringing, past experiences, positive and negative occurrences, and personal belief systems will influence how they interpret experiences and form a sense of self (Bronfenbrenner & Morris, 2006; Rosa & Tudge, 2013).

Bronfenbrenner's basic assumption is that humans cannot be understood in isolation, but must be considered in their context of relationships with the environment (Bronfenbrenner, 1976). He defines development as "lasting change in the way in which a person perceives and deals with his environment" (Bronfenbrenner, 1979, p. 3). Bronfenbrenner explains that an individual's environment interacts with the individual and the individual with the environment, while various environments influence one another concurrently (Bronfenbrenner & Morris, 2006; Leonard, 2011). These interactions can be either unidirectional or bidirectional. Unidirectional influences are one-way influences. One system is influenced directly by other systems, without exerting an influence on them (e.g. individuals are influenced by environments, without the individuals influencing the environment) (Johnson, 2008). Bidirectional influences are two-way influences, where both systems involved influence one another (Rhoades & Duncan, 2010). Bronfenbrenner also believes that events occurring within individuals' surroundings influence these individuals, even if they are not present (Rosa & Tudge, 2013).

Recently, Bronfenbrenner's theory has been renamed the 'bio-ecological systems theory' because of the importance that a person's biology plays in development. Biological aspects that influence development, and personal characteristics that persons take with them into any social situation, are included in this theory (Amoateng & Kalule-Sabiti, 2013; Bronfenbrenner, 1993; Rosa & Tudge, 2013). Bronfenbrenner identified three personal characteristics namely, demand characteristics (age, gender or physical appearance) resource characteristics (mental and emotional resources such as past experiences, intelligence, skills and material resources such as access to housing, education, and responsive caregivers) and force characteristics (variations in motivation, persistence and temperament) (Bronfenbrenner & Morris, 2006; Rosa & Tudge, 2013).

The five layers/systems identified by Bronfenbrenner (Amoateng & Kalule-Sabiti, 2013; Rosa & Tudge, 2013) is presented in Figure 1 and are discussed in the following section.

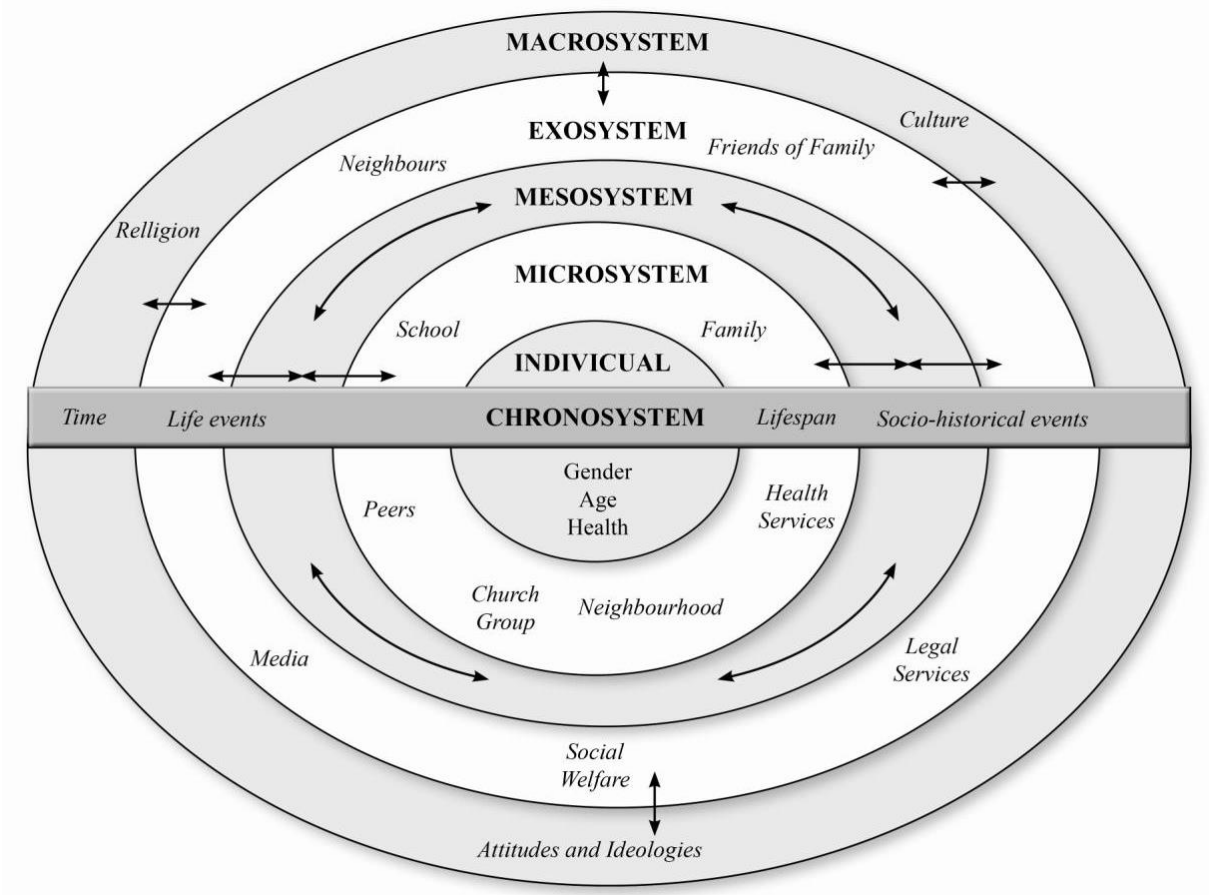

Figure 1. Bronfenbrenner's ecological systems theory. Reprinted from Huston and Bentley (2010, pp. 411-437).

3.1.1 Microsystem

The microsystem is the system closest to the focal point of the model (see Figure 1) (Leonard, 2011). The microsystem refers to all the processes, activities and relationships that occur in an individual's immediate environment (Guhn & Goelman, 2011). The microsystem can be explained as an individual's inner circles, which are settings with which an individual has direct, face-to-face relationships with significant people (Bronfenbrenner, 1979; Leonard, 2011). In the microsystem, the influences between the developing individual and these structures are bidirectional. Individuals influence and are influenced by the microsystems (Johnson, 2008).

In the microsystems, the focus is on individuals' families, friends, neighbourhoods, and religious groups. The family is one of the core microsystemic factors that influence an

individual's development. For children, the microsystems include peers, day care settings, and school. For adults, microsystems consist of the individual's work setting and colleagues (Hoffman & Kruczek, 2011).

3.1.2 Mesosystem

The mesosystem (see Figure 1) was originally referred to as the connections and continuous interactions between microsystems (Leonard, 2011). Just as the direction of influence between structures in the microsystems are bidirectional, mesosystems include bidirectional influences between various structures in the microsystems (Johnson, 2008). These connections include connections such as the relationships that exist between individuals' families and schools, families and peers, and families and neighbourhood relationships (Hoffman & Kruczek, 2011).

Bronfenbrenner and Ceci (1994) later reviewed the concept of the mesosystem. The mesosystem was expanded to include the bidirectional influence all consecutive layers of systems have on one another and the interactions among the systemic levels. An example is substance abuse among adolescents, where the effects of this behaviour go beyond the direct effect on the individual and the family members, peers or the school. These behaviours will influence broader social and community systems reciprocally. In the situation of substance abuse among adolescents, existing social and health care services become limited, and social support networks may become depleted. Furthermore, education settings may become unproductive (as learners are absent) and communities more disorganised (Hoffman & Kruczek, 2011).

3.1.3 Exosystem

The exosystem (see Figure 1) represents the larger social system that is external, and indirectly involved in individuals' development (Johnson, 2008; Leonard, 2011). The exosystem exerts a unidirectional influence that indirectly affects developing individuals, without the individuals affecting these systems (Johnson, 2008).

An exosystem consists of the networks or systems that indirectly influence individuals. It includes neighbourhoods, individuals' larger community, health care systems, and the mass media (Hoffman & Kruczek, 2011).

Adolescents' exosystems consist of their parents' work, family social networks, and neighbourhood and community contexts (Bronfenbrenner & Morris, 2006). Parents' lives outside their home environment, although not influencing the adolescent directly, play an important part in adolescents' psychological development (Bronfenbrenner, 1979).

3.1.4 Macrosystem

The macrosystem is the outmost layer of the ecological systems theory (see Figure 1) and is the "social blueprint" of a given culture, subculture, or broad social context (Bronfenbrenner, 1979; Hoffman & Kruczek, 2011). Macrosystems are all-encompassing systems of the micro-, meso-, and exosystems. It is an extensive ideology of a particular culture, subculture, or social class (Bronfenbrenner, 1979).

Macrosystems comprise the all-encompassing pattern of values, belief systems, lifestyles, opportunities, customs, and resources embedded in other systems (Bronfenbrenner, 1979; Hoffman & Kruczek, 2011). Generally, these systems are considered to exercise a unidirectional effect upon not only individuals, but also the micro-, meso-, and exosystems (Johnson, 2008).

3.1.5 Chronosystem

The final layer of this model, the chronosystem, broadens the environment into a third dimension. The chronosystem includes the transitions and shifts that influence development. It includes the changes and constancies that occur during an individual's life span (Bronfenbrenner, 1979). The chronosystem represents a time-based dimension that affects the operation of all levels of the ecological systems (Leonard, 2011).

The chronosystem consists of ecological happenings and changes occurring throughout individuals' lives, as well as the most important life transitions and socio-historical events (Shaffer, 2001). Frequently, these changes in environments or contextual transitions are noteworthy turning points in development. These effects are normative or non-normative and can affect individuals' development directly or indirectly (Bronfenbrenner, 1979; Shaffer, 2001).

Normative effects are happenings that occur in a relatively similar way, at about the same age for most people. Examples include going from primary to high school, starting puberty, or entering higher education (Bronfenbrenner, 1979). Normative influences can also be major historical events that influence everyone living at the place of the event and at the time of the event. Examples include depressions, wars, and natural disasters (Bronfenbrenner, 1979).

Non-normative influences are unexpected events that are uncommon and do not affect a large group of people (Bronfenbrenner, 1979). Examples of non-normative events include the death of a parent during childhood, unplanned pregnancy in adolescence, and severe illness (Bronfenbrenner, 1976; Bronfenbrenner & Morris, 2006)

Thus, from an ecological systems perspective, development is not only based on individual characteristics or environmental conditions. Individuals' environments affect them, and simultaneously, they affect their environments. Individuals and their environments are a system of interdependent effects, with reciprocal relationships, where a change in one system will inevitably bring about change in another.

3.2 The effect of contextual systems on adolescent risk-taking behaviour

In this section, the contextual influences on adolescent risk-taking behaviour are described. The influences will be described using Bronfenbrenner's ecological systems theory as a framework.

3.2.1 Microsystem and mesosystem influences

Adolescents' micro- and mesosystems include their interpersonal relationships and the social groupings/networks with which adolescents have a continuing personal and social relationship (Hoffman & Kruczek, 2011; Leonard, 2011). In the following sections, the contextual influence of the parental, peer, and school systems on the risk-taking behaviour of adolescents will be discussed.

3.2.1.1 The influence of parents on adolescent risk-taking behaviour

Various authors have noted that parents play an important role in the social development of adolescents (Geldard & Geldard, 2010; Louw et al 2007; Santrock, 2009; Wang et al., 2014b). During adolescence, conflict arises between adolescents and parents as adolescents move away from being dependent on their parents, towards becoming autonomous adults (Shaffer, 2001). This strive for autonomy can lead to more rebellious behaviour during adolescence (Santrock, 2009).

Parents have an enormous role to play in protecting adolescents from risk-taking behaviour. For the purpose of this study, three aspects, namely psychological control, parental limit setting, and parental monitoring as they relate to adolescent risk-taking behaviour are discussed.

a) Parental psychological control

Arım, Marshall, and Shapka (2010) define parental psychological control as parents' invasive efforts to control adolescents' feelings and thoughts. Rodgers (1999) states that parental psychological control is behaviour of parents that intrudes upon, hinders, or manipulates adolescents' behaviour. High levels of parental psychological control are associated with depression, suicidal ideation, low self-esteem, low self-confidence, aggression, antisocial behaviour, and delinquency (Arım et al., 2010). It is important for normal adolescent development that parents encourage autonomous thinking, as this leads to self-discovery and social competence, while excessive psychological control by parents will hinder this process of social and psychological maturation (Rodgers, 1999). This interruption in maturation can lead to problem behaviour in adolescence, including risk-taking behaviour (Amoateng et al., 2006; Assor, Roth, & Deci, 2004).

b) Parental limit setting

Parental limit setting is a form of behavioural control and refers to the management of adolescents' behaviour and activities by their parents (Arım et al., 2010). Various researchers have supported the notion that poor parental control and support are associated with adolescents' involvement in antisocial behaviour and other social problems (Arım et al., 2010; Lavikainen, Salmi, Aaltonen, & Lintonen, 2011; Rodgers, 1999). For example, adolescents who

report parental restrictions, even in activities such as restricting what they watch on television, are less likely to smoke and drink (Hanewinkel, Morgenstern, Tanski, & Sargent, 2008). Amoateng et al. (2006) found that adolescents from all racial groups who reported more parental limit setting also reported lower levels of substance use.

c) Parental monitoring

Parental monitoring is another form of behavioural control, described as parents' efforts to gain knowledge of children and adolescents' behaviour. Effective parental monitoring ensures that parents know more about where their children are and who their friends are. This reduces adolescents' involvement in risk-taking behaviour and their association with peers who engage in risky behaviour (Baptiste, Tolou-Shams, Miller, Mcbride, & Paikoff, 2007; Véronneau & Dishion, 2010). Higher parental monitoring leads to adolescents having less time, place, and/or opportunities to engage in risk-taking behaviour (Feldstein & Miller, 2006; Kalina et al., 2013). Parental monitoring is one of the most reliable predictors of positive child development and a protective factor against problem behaviour such as adolescent risk-taking behaviour (Darling, 2007; Wang et al., 2014a).

Parental monitoring is increased through good adolescent-parent communication (Wang et al., 2014a). Good adolescent-parent communication creates a safe environment in which adolescents feel comfortable sharing information about their daily activities and involvement. Good communication, in turn, lead to increased parental monitoring (Wang et al., 2014a). According to Leonard (2011), adolescent disclosure to parents is associated with lower levels of rule breaking and reckless behaviour. Parental knowledge of their children's whereabouts has been found to be correlated negatively with deviant behaviour (Amoateng et al., 2006). Various researchers have found an association between lower levels of parental knowledge and monitoring and increased risk-taking behaviour in adolescence (DiClemente et al., 2001; Lahey, Van Hulle, D'Onofrio, Rodgers, & Waldman, 2008; Reynolds, MacPherson, Matusiewicz, Schreiber, & Lejuez, 2011).

3.2.1.2 The influence of peers on adolescent risk-taking behaviour

Peer groups also influence adolescents' development (Santrock, 2009; Shaffer, 2001; Wang et al., 2014b). During adolescence, individuals have an intense need for belonging to a peer group (Cheng & Furnham, 2002). Sullivan (1953) argues that adolescents have basic social needs that are met through friendships. These social needs have an influence on the adolescents' well-being and include the need for care, social acceptance, intimacy, and sexual relations (Sullivan, 1953).

The fact that peers play a significant role in adolescent risk-taking behaviour has been known and studied for many years (Amoateng & Kalule-Sabiti, 2013; Reynolds, MacPherson, Schwartz, Fox, & Lejuez, 2014; Varela & Pritchard, 2011). According to Smith, Chein and Steinberg (2014), adolescents are more likely to engage in risk-taking behaviour with their peers than when they are alone, suggesting that peers play a major role in risk-taking behaviour. It has been suggested that friends have an influence on adolescents' risk-taking behaviour because they provide information regarding what behaviour is accepted and admired. Friends determine what behaviour is considered appropriate in a given social context, and therefore, what behaviour is likely to lead to social acceptance and reinforcement (Reynolds et al., 2014). According to Crockett, Raffaelli and Shen (2006), adolescents who affiliate with peers that misbehave are more likely to also engage in deviant behaviour. It can then also be assumed that adolescents who affiliate with prosocial peers will be less likely to engage in risk-taking behaviour (Feldstein & Miller, 2006).

In this study, to explore the influence of peers on risk-taking behaviour, three factors, namely peer connection, peer regulation and peer psychological control will be examined.

a) Peer connection

Amoateng and Kalule-Sabiti (2013) explain peer connection as the amount of time adolescents spend with their friends or how connected adolescents are to their peers. Peer connection can either increase or decrease adolescents' chances to engage in risk-taking behaviour because adolescents who do not have many friends and who do not spend time with them have less social support. Social support acts as a buffer against stress. Individuals with limited social support might engage in more risk-taking behaviour (Cohen, Gottlieb, & Underwood, 2001).

Other researchers indicate that peer connectedness and a strong peer bond with friends would increase risk-taking behaviour in adolescents (Gardner & Steinberg, 2005; Smith et al., 2014). These seemingly contradicting findings might be explained by the type or quality of peer relationships (Telzer, Fuligni, Lieberman, Miernicki, & Galvan, 2015). Hansell (1985) indicates that the quality of adolescents' friendships (e.g., intimacy and support), rather than the quantity of friends, influences adolescent adjustment and involvement in risk-taking behaviour. According to Telzer et al., (2015), peer relationships characterised by conflict are associated with more risk-taking behaviour, while peer relationships characterised by support are associated with less risk-taking behaviour.

b) Peer regulation

Peer regulation entails the encouragement of peers in obeying laws and regulations (Amoateng & Kalule-Sabiti, 2013). Research that examines the influence of peer regulation is limited. The social learning perspective can be used to explain and explore peer influence on prosocial behaviour (peer regulation) (Wentzel, Barry, & Caldwell, 2004). It has been argued that peers can act as motivational influence to model prosocial behaviour. This implies that adolescents will behave in a specific manner, because their peers consider such behaviour as desirable (Hurtup & Stevens, 1999). Adolescents are more likely to follow rules and regulations if their peers obey these rules (Voisin, Hong, & King, 2012).

c) Peer psychological control

Peer psychological control can be described as peers' efforts to control adolescents' feelings and thoughts invasively in ways that intrude upon, hinder, or manipulate adolescents' behaviour (Arım et al., 2010). Various studies has focused on parental psychological control (Amoateng et al., 2014; Arım et al., 2010; Assor et al., 2004; Rodgers, 1999), but few studies have examined the influence of peer psychological control (Arım & Shapka, n.d.). Peer psychological control can be seen as a risk factor for adolescent risk-taking behaviour. Arım and Shapka (n.d.) did a study exploring the effects of peer psychological control on aggressive behaviour of adolescents. In this study, they found a positive correlation between adolescent aggression and perceived psychological control of peers.

3.2.1.3 The influence of schools on adolescent risk-taking behaviour

Schools and the relationships that exist among adolescents and schools influence adolescent risk-taking behaviour. Schools are essential for academic development, but it can also be an environment for learners to develop social, psychological, and physical well-being (Govender et al., 2013).

For the purpose of this study, teachers' concern and school regulation are used as measures of the influence of a school on adolescent risk-taking behaviour.

a) Teachers' concern

Teachers' concern can be described as the positive, interpersonal relationship that teachers foster with learners. It is the interest that teachers show in the academic and psychological well-being of the learners (Amoateng & Kalule-Sabiti, 2013; Langille et al., 2014). At school, positive relationships with teachers may present adolescents with a vital source of adult direction and support. Furthermore, teachers observe school behaviour, enforce rules, and support adolescents in their learning (Kobak, Herres, Gaskins, & Laurenceau, 2012). Positive perceptions about the school environment and attitudes towards teachers have been linked with less risk-taking behaviour (Klein et al., 2012). McNeely et al. (2002) found that adolescents who experienced a sense of connectedness to adults at schools were less likely to use substances, suffer from emotional pain, attempt suicide, and become involved in socially unacceptable and risk-taking behaviour. Good teacher-learner relationships in schools have been associated with motivation for learning and better school performance and engagement (Kobak et al., 2012; Yi et al., 2010). On the other hand, negative interactions between teachers and learners can lead to disengagement and lack of belonging in schools. Learners that become disengaged in school, are more likely to associate with deviant peers and engage in risk-taking behaviour (Juvonen, 2007; Kobak et al., 2012).

b) School regulation

School regulation can be defined as the set of rules and regulations set by schools to inform learners about what behaviour is acceptable and what not (Amoateng & Kalule-Sabiti, 2013). Bonell et al. (2013) found that schools with strict regulations promote adolescent involvement

in school, commitment in school, and individual development. In turn, school commitment and involvement decrease adolescents' involvement in problematic behaviour. Piontek et al. (2008) reported that, if schools have strict policies that ban smoking in and around schools, there is a decrease in smoking. Amoateng and Kalule-Sabiti (2013) found that, when schools have strict rules enforcing and controlling adolescents' behaviour, adolescents tend to engage in behaviour that is more socially acceptable.

3.2.2 Influences of exosystems and macrosystems

Adolescents' exosystems and macrosystems include their communities, religions, cultures, and the laws governing their environments (Johnson, 2008). According to Hersen, Thomas, and Ammerman (2006), the exosystems and macrosystems are the most distal influences on adolescent development. In this section, the influences of exosystems and macrosystems on adolescent risk-taking behaviour are discussed. Although the focus of this study was mostly on the effect of communities on adolescent risk-taking behaviour, the effects of religion, culture, and law are mentioned briefly.

3.2.2.1 The influence of communities in adolescent risk-taking behaviour

Researchers have suggested that communities or neighbourhoods are important social contexts that influence family functioning and, therefore, individual functioning (Amoateng & Kalule-Sabiti, 2013; Cavazos-Rehg et al., 2009). For the purpose of this study, two aspects, namely community disorganisation and community psychological control are used as measures of the influence of the community on adolescent risk taking behaviour are discussed.

a) Community disorganisation

Community or neighbourhood disorganisation is defined as the failure of a community to realise the shared values of its people and uphold effective social controls (Amoateng & Kalule-Sabiti, 2013; Schildkraut & Mustaine, 2014). Ineffective social control is also associated with disadvantaged communities (Schildkraut & Mustaine, 2014). The term *disadvantaged communities* is used for neighbourhoods with a high level of poverty, unemployment, and crime (Swahn & Bossarte, 2009). Disadvantaged communities are perceived as a risk factor for adolescent engagement in risk-taking behaviour such as violence, substance use, and risky

sexual behaviour. The more resources a community has, for example activities for children and good role models, the lower the risk-taking in that community is (Youngblade et al., 2006). In a study regarding risky sexual behaviour and community influences, Stephenson (2009) revealed that prevailing economic conditions, such as poverty and the behaviours and attitudes of adults in the community, strongly affected young people's sexual behaviour. Swahn and Bossarte (2009) found that adolescents living in urban, disadvantaged communities were significantly more likely than the rest of the population to engage in risk-taking behaviour. They specifically found that these adolescents were more involved in vandalism, violence, use of weapons, and drug selling (Swahn & Bossarte, 2009).

b) Community psychological control

Community psychological control refers to the incidence of community members' behaviour that is psychologically intrusive and manipulative upon the individual (Amoateng & Kalule-Sabiti, 2013). Limited research has focused on community psychological control; therefore, it was linked to parental psychological control. As with parental psychological control, community psychological control will hinder the process of social and psychological maturation (Rodgers, 1999). Amoateng and Kalule-Sabiti (2013) indicate that, when individuals in communities are manipulative, it has an adverse effect on adolescent behaviour. In this study, they noted that community psychological control is associated positively with female involvement in risky sexual behaviour (Amoateng & Kalule-Sabiti, 2013).

3.2.2.2 The influence of culture and religion in adolescent risk-taking behaviour

Although not always focused on as much, religion and culture play an important role in adolescent development (Hope & Cook, 2001). Hence, it will also affect risk-taking behaviour. Religion is often used as a form of coping; it reduces stress and acts as a buffer against adverse life events, as individuals use it to make meaning (Bakibinga, Vinje, & Mittelmark, 2014). Adolescents who are involved with religious groups often have more coping skills and extra social support (Frank & Kendall, 2001). Involvement with religion decreases the likelihood that they will engage in risk-taking behaviour (Frank & Kendall, 2001; Hope & Cook, 2001).

Culture also influences risk-taking behaviour in adolescents. The fuzzy trace theory (Reyna & Brainerd, 1995) incorporates cultural norms and values with risk-taking behaviour. According to the fuzzy tracy theory, when adolescents gain more understanding of their culture, their ability to make informed decisions, specifically related to risk-taking behaviour, improves (Rivers, Reyna, & Mills, 2008). For example, adolescents who perceive their cultural values as weak and their futures as depressing due to societal constraints are more likely to engage in risk-taking behaviour. The reason for this engagement in risk-taking behaviour is that they do not have a reason not to engage in such behaviour (Fabian, 2009).

3.2.2.3 The influence of the law on adolescent risk-taking behaviour

The legislation and regulations of a particular country are another aspect of the macrosystem that influences adolescents. In South Africa, numerous laws aim to regulate risk-taking behaviour and protect adolescents from engaging in various kinds of risky behaviour. According to the South African law, individuals under the age of 16 years cannot consent to sex (Section 15 of the Criminal Law (Sexual Offences and Related Matters) Amendment Act, No. 32 of 2007). Contradictory to this, the Children's act No 38 of 2005 states that children from the age of 12 years can consent to the use of contraceptives, and in Section 5 of the Choice on Termination of Pregnancy Act No. 92 of 1996 it is written that at any age, they can consent to termination of pregnancy (Strode, Slack, & Essack, 2010). In South Africa, the Liquor Act 59 of 2003 prohibits anyone under the age of 18 years from buying or drinking alcohol and from buying cigarettes (Mahery & Proudlock, 2011).

3.2.3 Influences of the chronosystem

In this section, the influence of the chronosystem on risk-taking behaviour is discussed. The chronosystem includes international trends and general changes in South Africa that affect adolescent risk-taking behaviour.

Various global transitions that occurred during the last two decades can influence adolescent risk-taking behaviour. An evolving trend worldwide is that the life phase of adolescence is prolonged (Arnett, 2000). Adolescents have to acquire further education or skills to enter the adult world. Owing to the prolongation of the adolescence life phase, risk-taking behaviour also

occurs for longer periods during individuals' lives (Mortimer & Larson, 2002). Risk-taking behaviour is prolonged as more and more adolescents take longer to achieve and/or acquire social tasks related to adulthood.

Urbanisation also affects adolescent risk-taking behaviour. Urbanisation is considered a chronosystemic influence because it affects individuals worldwide in the 20th century as more and more people move from rural to urban areas (Collins, 2001). Owing to urbanisation, adolescents' relationships with families and communities wear off, and that leads to social isolation (Call et al., 2002). In turn, social isolation from families, can lead to adolescents forming a closer relationship with peers and increased engagement in risk-taking behaviour (Smith et al., 2014).

In South Africa, various changes occurred over the last two decades. The end of the apartheid era is one of the major events in South Africa that affected all systems. During apartheid, black African adolescents received separated, below standard, inadequate education and healthcare, and they were also barred from some job categories as adults (Nel, Rogerson, Marais, & Wessels, 2004). In 1994, South Africa abolished apartheid and the new government implemented policies to address and assist the previously disadvantaged and rectify previous inequalities (Durrheim, 2003).

Regardless of the change, apartheid continues to affect South Africans (Van Jaarsveld, 2000). Some of these long-lasting effects include disagreement in families, disrespect for parents and other important adults, poor education systems, harsh living conditions, and overpopulation (Ferns & Thom, 2001). Furthermore, there is a lack of suitable role models in black communities (Ferns & Thom, 2001). Social problems such as crime, fraud, poverty, and AIDS also affect adolescents (Ferns & Thom, 2001).

From the above-mentioned, it can be argued that adolescents living in South Africa currently are more vulnerable to risk-taking behaviour than adolescents in other countries. Aspects that can contribute to South African adolescent risk-taking behaviour are poor family relations, poor education opportunities, disorganised communities, poverty, and a lack of role models.

3.3 Chapter summary

In this chapter, an overview of Bronfenbrenner's ecological systems theory was provided. The theory was explained by focussing on the five layers/systems, namely the micro-, meso-, exo-, macro-, and chronosystems. The chapter also includes a discussion of the influence of each of the systems on adolescents' risk-taking behaviour. A description of the methodology used to conduct this research study is discussed in the next chapter.

CHAPTER 4

Research Methodology

In this chapter, the methodology employed in this research study is discussed. Firstly, an overview of the research rationale, aim, and questions that are relevant to this study is given. Secondly, a detailed description of the research design and approach used in this study follows. Thirdly, the research participants and sampling procedures are explained, including the inclusion and exclusion criteria applied. Fourthly, the methods of data collection and analysis are described. Finally, a description of the ethical considerations that were taken into account and chapter summary concludes this chapter.

4.1 Research rationale, aim, and questions

Adolescence is the developmental stage during which individuals engage in reckless, thrill-seeking, and risk-taking behaviour to a greater extent than during any other life period (Gardner & Steinberg, 2005). Middle and late adolescents were included in the study, as some research has shown that risk-taking peaks during late adolescence (Arnett, 2000; Booth, Johnson, Granger, Crouter, & McHale, 2003; Igra & Irwin, 1996). As evident in previous chapters, risk-taking behaviour is common in South African adolescents; therefore, research that can aid in discovering the causes of risk-taking behaviour among South African adolescents will be valuable.

Reddy et al. (2010) note that the three categories of risk-taking behaviour that require research and intervention in South Africa are violence, substance use, and risky sexual behaviour. Therefore, this study included these three types of risk-taking behaviour. In the Second South African National Youth Risk Behaviour Survey (Reddy et al., 2010), differences regarding gender and risk-taking behaviour were noted; therefore, an investigation into gender differences formed part of this study.

South African research often focuses on the prevalence of risk-taking behaviour in adolescents (Wegner & Flisher, 2009). Prevalence studies are valuable in understanding the extent of the behaviour, but they do not provide information regarding the aetiology of the behaviour. Some studies that focussed on aetiological factors mostly examined factors such as personality

predispositions or environmental predictors (Feldstein & Miller, 2006). However, these studies rarely simultaneously examined social and community factors that contribute to risk-taking behaviour in adolescents (Amoateng & Kalule-Sabiti, 2013). Therefore, a contextual perspective including various systems (parental, peer, school, and community) was followed in this study.

From the above, it is evident that there is a lack of South African research that focuses on risk-taking behaviour and the contextual factors affecting adolescent risk-taking behaviour (Amoateng & Kalule-Sabiti, 2013). Thus, the aim of this study was to investigate the various contextual factors affecting risk-taking behaviour in middle and late adolescent males and females. The following research questions were investigated:

1. Are there significant differences in the risk-taking behaviour (violence, substance use, and risky sexual behaviour) of adolescent males and females?

2. Can a significant amount of variance in risk-taking behaviour be explained by parental, peer, school, and community systems?

With regard to question 1, it was hypothesised that there would be significant differences between adolescent males and females in all three types of risk-taking behaviour (violence, substance use, and risky sexual behaviour).

With regard to question 2, it was hypothesised that parental, peer, school, and community systems would explain a significant amount of variance in risk-taking behaviour, with certain contextual factors (parental psychological control, peer connection, peer psychological control, community disorganisation, and community psychological control) being positively associated with risk-taking behaviour, while others (parental limit setting, parental monitoring, peer regulation, teachers' concern, and school regulation) being negatively associated with risk-taking behaviour.

4.2 Research design and approach

According to Durrheim (2006), a research design can be defined as the strategic framework that sets out the plan of action or explains the methods used in a particular research study. The

purpose of a research design is to describe how the data are gathered, analysed, and interpreted (Stangor, 2011). For the purpose of this research study, a quantitative approach was used to investigate the factors affecting risk-taking behaviour in middle and late adolescent males and females using the ecological systems perspective. Furthermore, a non-experimental research approach was followed that was descriptive in nature and made use of a correlation and criterion group design (Price, 2012; Sousa et al., 2007).

Quantitative research focuses on measurement. It is an objective, systematic process in which statistical data collected from a sample group are used to provide answers about the relationships between measured variables. It answers questions such as "how long", "how many", or "the degree to which". Quantitative research aims to generalise results obtained from a sample to the population (Macdonald & Headlam, 2008). An advantage of quantitative research is that it is a scientific approach used to prove or disprove hypotheses. Quantitative research allows for a broader study that involves more participants than qualitative research does. Because more participants and larger samples are involved, the results in quantitative research can be generalised and can be used to make predictions (Brent & Kraska, 2010; Tewksbury, 2009). When comparing quantitative research with qualitative research, the data used in quantitative research are displayed in numbers or statistical format, allowing greater objectivity and accuracy of results as well as replication and comparison of studies (Kawulich, Garner, & Wagner, 2012). However, quantitative research is not without disadvantages. Some disadvantages of quantitative research are that it may be time consuming to evaluate large samples, lacks contextual detail, and provides less in-depth understanding of human behaviour (Tewksbury, 2009).

A non-experimental research design entails research in which the researcher does not intervene in the process by means of manipulation or control. The advantages of non-experimental research are that the researcher merely observes, measures, and describes the phenomena as they occur, without manipulating or controlling any variables (Fouche & De Vos, 2009b). This is important because some variables cannot be manipulated or controlled, and in other instances, variables should not be manipulated due to ethical concerns (Sousa et al., 2007). The disadvantages of non-experimental designs are that participants are not assigned randomly, and true cause-and-effect relationships cannot be established (Price, 2012). In this research, the researcher did not manipulate any of the variables but merely observed the manifestation of the constructs in the participants as provided through self-report surveys.

With descriptive research, the researcher aims to describe the current state of affairs (Stangor, 2011). This type of research provides the reader with a description of the characteristics of the raw data collected (Aron et al., 2009). Descriptive statistics are used to describe a particular social setting, situation, or relationship, and in quantitative research, it is often used to depict the characteristics of the sample population (Fouche & De Vos, 2009a). Advantages of descriptive research include that it aims to give a comprehensive understanding of complex everyday behaviour as it occurs, and it verifies the frequency with which it occurs. A disadvantage of this type of research is that it lacks the ability to predict or determine what caused the behaviour (Stangor, 2011). In this research, a descriptive research design was used to depict and describe the various variables, their manifestation in certain groups, and the relationships between them.

Correlational research aims to describe the relationship that exists between two or more variables (Fouche & De Vos, 2009a; Stangor, 2011). Correlational research is used to determine the strength and the direction of relationships between two or more variables. The limitation is that correlational research cannot be used to describe causality or provide reasons for why the relationship exists (Stangor, 2011). A correlational research design was used in this study to determine if any relationship exists, as well as the strength and direction of the relationship between various systems (parents, peers, school, and community) and risk-taking behaviour (violence, substance use, and risky sexual behaviour) during adolescence.

Criterion group design research aims to describe the differences in variables that occur naturally between two or more cases or subjects in a study. In other words, in criterion group design, at least two different groups are compared with regard to one or more dependent variable(s) (Sousa et al., 2007). In this research study, a criterion group design was applicable to investigate whether there are differences in risk-taking behaviour (substance use, sexual behaviour, and violence) between males and females.

4.3 Research participants and sampling procedures

This research focussed on black middle and late adolescents in the Mangaung area in the Free State Province of central South Africa. Mangaung includes the judicial capital of Bloemfontein, towns such as Botshabelo and Thaba Nchu, as well as a large rural area. The population consists of approximately 750 000 people, of whom 83.3% are black African individuals (Statistics South Africa, 2012). Black participants in this study refer to the racial classification of participants. Black people are one of the four major racial groups in South Africa, together with white people, coloured people and Indian people (Statistics South Africa, 2012).

Adolescence is the life stage between childhood and adulthood (Whitmire, 2000). Adolescence is divided into three substages, namely early adolescence (ages 10 to 14 years), middle adolescence (ages 15 to 17 years) and late adolescence (from 18 years to early twenties) (Perkins, 2001). Adolescents formed the population group for this study, as it is the developmental life phase during which individuals engage in the most risk-taking behaviour compared to other developmental phases (Gardner & Steinberg, 2005). Middle and late adolescents were included in the study, as researchers have indicated that risk-taking peaks during late adolescence (Arnett, 2000; Booth et al., 2003; Igra & Irwin, 1996).

This study included black participants from four English-medium high schools. The criteria for inclusion in the study were that participants had to be between the ages of 16 to 19 years, attend school in the Mangaung area where data were collected, be from the black racial group, and be willing to participate in the study. The study included male and female participants from various ethnic groups (Sesotho, Setswana, and isiXhosa).

In this study, non-probability, convenience sampling was employed. Non-probability sampling refers to sampling in which the selection of participants is not determined by statistical randomness (Durrheim, 2006; Stangor, 2011). In non-probability sampling, the chances of an individual being selected for the sample is unknown. Non-probability samples are often used in social research, as it is affordable and easy to obtain (Durrheim, 2006). Convenience sampling is used when the researcher selects a sample purely based on availability (Stangor, 2011). The advantages of convenience sampling are that it is affordable and easy to execute, as the researcher does not need to have access to all individuals in the population. However, limitations are that this type of sampling may be biased, as not everyone has the same chance

of being selected. Therefore, the researcher cannot generalise the findings. This also implies that this type of sample is not truly representative of the population (Durrheim, 2006).

The final sample for this research study, after all incomplete surveys had been eliminated, consisted of 194 black adolescents. In Table 1, a summary of the age and gender distributions of the sample is provided.

Table 1

Distribution of the Sample with Regard to Age and Gender

Biographic characteristic		**Frequency**	**%**
Age	16 years of age	10	5.2
	17 years of age	39	20.2
	18 years and older	144	74.2
	Unknown age	1	0.5
	Total of age	**194**	**100**
Gender	Male	92	47.4
	Female	98	50.5
	Unknown gender	4	2.1
	Total of gender	**194**	**100**

All 194 participants in this study were in grade 11. Although grade 11 learners usually are expected to be 17 years of age, the majority of the participants in this study were in the age range above 18 years (74.2%). Regarding gender, the sample was divided relatively equally with 50.5% of the participants being female, and 47.4% of the participants being male.

4.4 Procedures of data collection

Data were collected for this study using self-report questionnaires that participants completed. Questionnaires are used most often in non-experimental quantitative research designs, as this allows the researcher to measure variables as they occur at a specific time (Delport, 2009). Self-report questionnaires consist of a series of structured questions that produce written responses (Coolican, 2004). Self-report measures have various advantages, amongst others that the use of

self-report measures ensures that the researcher obtains the opinion or perspective of the participants directly (Barker, Pistrang, & Elliott, 2005). However, a disadvantage is that answers obtained by means of self-report questionnaires can be biased and therefore can influence validity (for example, if participants want to portray themselves in a particular manner, if they do not know themselves, or if the questions are not understood clearly) (Barker et al., 2005; Coolican, 2004). Questionnaires were used in this study because it ensured privacy and anonymity (specifically because of the sensitive nature of the study). The use of questionnaires also ensured that the data were collected in the same manner for each participant (Barker et al., 2005).

Postgraduate psychology students acted as fieldworkers and assisted in administering the questionnaires. These postgraduate students were all involved in a community engagement programme at the specific schools and, thus, had a good understanding of the context and a trusting relationship with the participants. The fieldworkers were briefed about the research study and the topic under investigation. They were also trained in the administration of the measuring instruments that were used. All data were collected under the supervision of the researcher.

The self-report battery (see Appendix A) included a biographic questionnaire, an adapted and shortened version of the Youth Risk Behaviour Survey (YRBS), and a questionnaire compiled by Amoateng and Kalule-Sabiti (2013). Each of these scales is discussed in detail below.

4.4.1 Biographic questionnaire

In the biographic section of the survey, participants were asked to provide their age and gender group.

4.4.2 Measurement of risk-taking behaviour

To measure risk-taking behaviour in three domains, namely violence, substance use, and risky sexual behaviour, a shortened and adapted version of the Youth Risk Behaviour Survey (YRBS) was used.

The YRBS is one of the most commonly used instruments to measure and monitor the extent of risk-taking behaviour in adolescents (Klein et al., 2012). The initial form of this measuring

instrument was developed by the Centers for Disease Control and Prevention (CDC), in the US, to monitor health risk behaviour in American youth (Centers for Disease Control and Prevention, 2013a).

In South Africa, the YRBS was performed twice (once in 2002 and again in 2008) by the Medical Research Council in association with the Departments of Health and Education in the form of a cross-sectional national prevalence study among high school learners in public schools in South Africa (Reddy et al., 2010). The complete scale measures six categories of risk-taking behaviour, namely 1) unintentional injuries and violence; 2) sexual behaviour that contributes to unintended pregnancy and sexually transmitted diseases; 3) alcohol and other drug use; 4) tobacco use; 5) unhealthy dietary behaviour; and 6) inadequate physical activity (Centers for Disease Control and Prevention, 2013a). It is a self-administered questionnaire that includes close-ended questions, consisting of either "Yes" and "No" responses or Likert scale items (Centers for Disease Control and Prevention, 2013a). Higher scores on the YRBS indicate greater risk-taking behaviour (Popham, Kennison, & Bradley, 2011).

For the purpose of this research, the YRBS was adapted and shortened by following the guidelines of the Guide to Conducting Your Own Youth Risk Behavior Survey (Centers for Disease Control and Prevention, 2014). The survey in this study consisted of 37 questions, measuring 1) violence, 2) substance use, and 3) risky sexual behaviour. The responses were coded with a numerical value for each of the possible responses for each item. Numerical values started at one (lowest risk-taking) and increased by one (the higher the value, the more risky the behaviour); for instance, responses to "Have you ever had sexual intercourse?" included "No" = 1 and "Yes" = 2, and responses to "During your life, on how many days have you had at least one drink of alcohol?" included "0 days" = 1, "1 or 2 days" = 2, "3 to 9 days" = 3, "10 to 19 days" = 4, "20 to 39 days" = 5, "40 to 99 days" = 6, and "100 or more days" = 7. Table 2 displays the subscales included in the YRBS version used in this study.

Table 2

Subscales of YRBS used in this Study

Subscales		N of items	Score range	Sample item
Violence		8	8-44	*"During the past 30 days, on how many days did you carry a weapon such as a gun, knife, or club?"*
Substance use	Tobacco use	5	5-31	*"During the past 30 days, on how many days did you smoke cigarettes?"*
	Alcohol use	6	6-44	*"During your life, on how many days have you had at least one drink of alcohol?"*
	Marijuana use	3	3-20	*"During your life, how many times have you used marijuana?"*
	Use of other drug	9	9-47	*"During your life, how many times have you used any form of cocaine, including powder, crack, or tik?"*
Risky sexual behaviour		6	6-31	*"During your life, with how many people have you had sexual intercourse?"*

In follow-up studies on the test-retest reliability of the YRBS, good test-retest reliability indications were obtained (Brener et al., 2002). Popham et al. (2011) reported internal consistency values for the different subscales of the YRBS that ranged from 0.70 to 0.91 for the various risk-taking categories in a group of young adults.

The reliability of the YRBS and the subscales used in this study for this particular sample was determined using Cronbach's alpha coefficients. These reliability scores are provided in Table 3.

Table 3

Reliability of the YRBS

Subscale		N of items	Cronbach's alpha
Violence		8	0.506
Substance use	Tobacco use	5	0.787
	Alcohol use	6	0.754
	Marijuana use	3	0.825
	Other drug use	9	0.701
	Total for substance use	23	0.831
Risky sexual behaviour		6	0.830
Complete risk-taking scale		**37**	**0.870**

The reliability scores for the variables violence, substance use, and risky sexual behaviour ranged from 0.506 to 0.831, with the reliability of the total measure being 0.87. According to Drost (2011), a reliability score of 0.70 or higher is acceptable for most measures used in the social sciences. Therefore, the reliability of most of the subscales used in this study is acceptable, except for the low internal consistency that was found with regard to the violence scale.

4.4.3 Measurement of contextual factors

To measure the various contextual factors, a survey battery compiled by Amoateng and Kalule-Sabiti (2013) was utilised. Amoateng and Kalule-Sabiti (2013) compiled and adapted the battery from a variety of existing questionnaires, such as the Revised Children's Report of Parent Behaviour Inventory (CRPBI) and the Psychological Control Scale Youth Self-Report (PCS-YSR) (also see Amoateng et al., 2006).

This survey battery consists of 44 Likert scale items, with various subscales measuring parental, peer, school, and community influence. To analyse the data, the responses were coded with numerical values. The higher the score, the more of that specific contextual factor was present in the participant's life. For example, a high score on parental limit setting indicated that the participant experienced high levels of limit and rule setting from parents. A high score on peer

connection indicated that the participant spent a lot of time with his/her peers. In Table 4, a summary of the subscales is provided.

Table 4

Subscales of the Contextual Factor Questionnaire used in this Study

Subscales		N of items	Score range	Sample item (adapted)
Parental influence	Parental psychological control	8	8-24	"*How often do your parents change the subject, whenever you have something to say?"*
	Parental limit setting	5	5-15	"*How often do your parents restrict the amount of time you could watch television?"*
	Parental monitoring	6	6-24	"*How much do your parents (mother and father) know about who your friends are?"*
Peer influence	Peer connection	3	3-15	*"How often do you contact your friends through a phone call?"*
	Peer regulation	2	2-10	*"How often do your friends/peers help you to do what is right?"*
	Peer psychological control	4	4-20	*"How often do your friends or peers disagree with you?*"
School influence	Teachers' concern	4	4-20	*How many of your teachers believe you can do well in school?"*
	School regulation	3	3-15	*Do you think that there is a need for more rules and regulations in your school regarding stealing?"*
Community influence	Community disorganisation	6	6-18	*"How often is litter or trash on the sidewalks and streets present in your community?"*
	Community psychological control	3	3-15	*Does your neighbour always interfere in your businesses?*

Amoateng and Kalule-Sabiti (2013) found the reliability of the subscales to be between 0.469 (for peer psychological control) and 0.922 (for parental psychological control). In another study

done in the Western Cape Province, Amoateng et al. (2006) reported adequate levels of internal consistency for the contextual factors measured in that study.

The reliability of all the subscales of the contextual factor questionnaire used in this study for this particular sample was determined using Cronbach's alpha coefficients. These reliability scores are provided in Table 5.

Table 5

Reliability of the Contextual Factor Questionnaire used in this Study

	Scale	N of items	Cronbach's alpha
Parental influence	Parental limit setting	5	0.655
	Parental monitoring	6	0.727
	Parental psychological control	8	0.707
Peer influence	Peer connection	3	0.548
	Peer regulation	2	0.747
	Peer psychological control	4	0.669
School influence	School regulation	3	0.914
	Teachers' concern	4	0.820
Community influence	Community disorganisation	6	0.727
	Community psychological control	3	0.732

The reliability scores for the various contextual factors ranged from 0.548 to 0.914. Seven out of the ten contextual factors showed satisfactory reliability of above 0.70 (Drost, 2011). When the reliability of the contextual factors of this study is compared with the reliability scores obtained by Amoateng and Kalule-Sabiti (2013), it is observed that the lowest reliability in both studies was for peer connection.

4.5 Data analysis

The reliability of the measures for this particular sample and study was determined by using Cronbach's alpha coefficient, which is a measure that is often used to assess the internal consistency and reliability of a test (Aron et al., 2009).

The biographical characteristics of the sample, as well as the manifestation of the different variables in this sample, were considered by means of descriptive statistics. Selected items were analysed individually to provide statistical information regarding certain behaviour of interest. Examples of questions that were analysed individually include the following: "During the past 12 months, how many times were you in a physical fight?"; "During the past 30 days, on the days you smoked, how many cigarettes did you smoke per day?"; "During your life, how many times have you used marijuana?"; and "How old were you when you had sexual intercourse for the first time?"

Multivariate analyses of variance (MANOVA) is a statistical technique used in the analysis of the difference between groups when there is more than one dependent variable (Aron et al., 2009; Stangor, 2011). In this study, the aim of using a MANOVA was to determine whether there were statistically significant differences between males and females with regard to the dependent variables related to risk-taking behaviour, namely violence, substance use, and sexual risky behaviour (and their subcategories). Significant results of the MANOVA were followed by one-way analyses of variance (ANOVAs) to determine which dependent variables showed significant differences.

Multiple regression analyses are used to investigate the relationship between one dependent variable and many independent variables or predictors (Aron et al., 2009). In this study, a standard multiple regression analysis was performed to determine the amount of variance in risk-taking behaviour (including violence, substance use, and risky sexual behaviour) that can be explained by the various contextual factors (namely parents, peers, school, and community).

In all the statistical procedures, both the 1% and 5% levels of significance were considered.
The practical significance of the results was investigated by determining the effect sizes. A value of 0.2 indicates a small effect, a value of 0.25 indicates a medium effect, and a value of 0.4 indicates a large effect (Steyn, 1999).

4.6 Ethical considerations

When conducting research, certain ethical guidelines and considerations need to be adhered to. These ethical considerations are important as they protect the researcher's and the participants' rights.

To perform this research, permission was obtained from the Department of Education (see the approval letter in Appendix B) and the Research Ethics Committee of the Faculty of the Humanities, University of the Free State (see the ethical clearance letter in Appendix C). Permission was also obtained from the principals of the participating schools. Other ethical considerations that were taken into account during the research were justice, voluntary and informed consent, confidentiality, anonymity, non-maleficence, and the competence of the researcher. These are discussed below.

Justice refers to the ethical principle that requires participants to receive fair and equal treatment. It also entails the use of fair psychometric testing (Wassenaar, 2006). The principle of justice was adhered to, as the researcher treated all participants with respect, fairness, and equality during all the phases of the research study. The researcher also used psychometric tests that were proven fair, unbiased, and age-specific.

Obtaining informed consent suggests that all information regarding the study and purposes of the study, procedures used during the study, as well as possible advantages and disadvantages are disclosed to participants (Foxcroft & Roodt, 2009). In this study, informed consent was obtained, as the aims and procedures of the study were explained in detail to all participants before the data collection took place, and each participant was required to sign a consent form.

Confidentiality can be defined as the treatment of information in a confidential manner, and anonymity can be explained as a state of being unknown (Wassenaar, 2006). In other words, anonymity refers to a situation in which a person's name or any other identifying particulars are kept secret (Strydom, 2009). Owing to the sensitive nature of items in the questionnaires, all participants were assured of anonymity. The participants were not requested to give any identifying information on any of the questionnaires. Furthermore, the researcher stored the

completed questionnaires safely, so that no one except the researcher and supervisor has access to the questionnaires.

Non-maleficence refers to the responsibility of the researcher to ensure that no harm comes to participants as a direct or indirect consequence of the research study (Wassenaar, 2006). The researcher adhered to the principle by explaining to participants that the study was voluntary and that anyone was allowed to withdraw from the study at any point in time. Participants were encouraged to contact the fieldworkers (postgraduate students who were all involved in a community engagement programme at the specified schools) should they have any complaints or if they were in need of any further assistance or referral.

Researchers have an ethical obligation to make sure that they are trained appropriately and competent to undertake a research investigation (Strydom, 2009). The researcher ensured this by working under the supervision of an experienced researcher, and by attending training during the course of the research study. The competence of the fieldworkers who collected the data was ensured by using only psychology honours students and providing them with background about the research beforehand. These fieldworkers also collected the data under the supervision of the researcher and research supervisor.

4.7 Chapter summary

In this chapter, the research methodology used in this study was discussed. The research gap was indicated, and the rationale for performing this study was clarified. The aim of the study, with the corresponding research questions and hypotheses, was formulated. The non-experimental research approach, with its descriptive, correlational, and criterion group design, was explicated. The particular sampling procedure that was followed, namely non-probability, convenience sampling used to select participants, was explained in the chapter, followed by a presentation of the final sample. Data collection was described by discussing the measures used. Moreover, the methods of data analysis used to answer each research question were described and examined. The chapter also explained the ethical considerations that were taken into account to ensure that the research was conducted professionally. The next chapter will provide the results and a discussion of the results obtained in the study.

CHAPTER 5

Results and Discussion

The purpose of this chapter is to present the results obtained in this study and discuss the results. The descriptive and inferential statistics will be presented, followed by a discussion of the results in relation to the theoretical framework of this study, and previous literature in the field. The chapter is concluded with the summary of the issues presented.

5.1 Presenting the results

In this section, the results obtained in the study are presented. Firstly, descriptive statistics relating to risk-taking behaviour and the contextual factors, as they manifested in this sample are presented. Secondly, a presentation of the inferential statistics performed in relation to the two research questions is offered.

5.1.1 Descriptive statistics

Descriptive statistics provide a depiction of the characteristics of a large assortment of data (Salkind, 2013). In the following section, the descriptive statistics relating to risk-taking behaviours and the contextual factors are presented.

The means and standard deviation, as well as a range of scores obtained for the three types of risk-taking behaviour, namely violence, substance use, and risky sexual behaviour (and their subsections), are presented in Table 6.

Table 6

Minimum, Maximum, Mean, and Standard Deviation Scores for the Types of Risky Behaviour.

Risk-taking behaviour		Gender	Min	Max	Mean	Std dev
Violence (Score range 9 to 44)		Female	9	26	12.21	2.908
		Male	9	29	13.60	3.512
		Total	9	29	12.88	3.280
Substance use	Tobacco use (Score range 5 to 31)	Female	5	23	9.77	5.328
		Male	5	29	13.86	7.084
		Total	5	29	11.75	6.553
	Alcohol use (Score range 6 to 44)	Female	6	34	17.81	7.134
		Male	6	37	22.86	7.651
		Total	6	37	20.25	7.792
	Marijuana use (Score range 3 to 20)	Female	3	18	4.70	3.512
		Male	3	20	10.33	5.473
		Total	3	20	7.43	5.356
	Use of other drug (Score range 9 to 47)	Female	9	14	9.42	0.798
		Male	9	25	9.95	2.230
		Total	9	25	9.67	1.671
	Total Substance use (Score range 23 to 142)	Female	23	75	41.69	12.230
		Male	23	88	56.99	15.761
		Total	23	88	49.10	15.972
Risky sexual behaviour (Score range 6 to 31)		Female	6	22	11.96	5.175
		Male	6	30	19.90	6.511
		Total	6	30	15.81	7.071
Total risk-taking behaviour (Score range 36 to 217)		Female	38	108	65.87	15.736
		Male	42	130	90.49	20.450
		Total	38	130	77.79	21.924

For violence (with a possible score range of 9 to 44), participants' scores range from 9 to 29, with a mean of 12.88. If a possible total score of 44 is considered, the scores are in the lower ranges of the scale. The mean of 12.88 is also below the mid-point mark of 17.5.

For substance use (with a possible score range of 23 to 142), participants' scores range from 23 to 88, with a mean of 49.10. If a possible total score of 142 is considered, the scores are in the lower range of the scale. The mean of 49.10 is also below the mid-point mark of 59.5.

For risky sexual behaviour (with a possible score range of 6 to 31), participants' scores range from 6 to 30, with a mean of 15.81. If a possible total score of 31 is considered, the scores are in the higher range of the scale. The mean of 15.81 is also above the mid-point mark of 12.5.

For total risk-taking behaviour (with a possible score range of 36 to 217), participants' scores range from 38 to 130, with a mean of 77.79. If a possible total score of 217 is considered, the scores are in the lower range of the scale. The mean of 77.79 is also below the mid-point mark of 90.5.

Individual items were also analysed to provide specific descriptions. For example, for violence-related behaviour, 46.9% of learners indicated that they had been in one or more physical fight during the previous 12 months.

With regard to substance use, 14.9% of the learners smoked between 2 and 5 cigarettes per day, and 2,6% smoked more than 20 cigarettes per day. Learners also reported that 62.9% had at least one episode of binge drinking (five or more drinks within a few hours) during the last 30 days. Furthermore, 44.3% of learners had smoked marijuana at least once in their life, with 8.8% of learners having smoked marijuana more than 100 times. The use of all other drugs had a lower prevalence rate than marijuana had, with 8.8% of learners having used cocaine at least once in their lives, and 1,5% of learners having used heroin. In addition to this, 18% of learners had been offered, sold, or given illegal drugs on school property during the previous 12 months.

Questions related to risky sexual behaviour showed that 71.1% of learners had had sex before in their life, with 23,2% having had sex before the age of 13. Only 63,4% of the sexually active learners used some form of birth control the last time they had sex.

The descriptive statistics regarding the contextual factors, including the means and standard deviations, as well as the range of scores obtained for each of the variables, are summarised in Table 7.

Table 7

Minimum, Maximum, Mean, and Standard Deviation Scores for the Contextual Factors.

Contextual factors		Gender	Min	Max	Mean	Std dev
Parental influence	Parental limit setting (Score range 5 to 15)	Female	6	15	11.11	2.372
		Male	5	15	10.29	2.246
		Total	5	15	10.72	2.342
	Parental monitoring (Score range 6 to 24)	Female	8	24	18.56	4.120
		Male	6	24	16.75	5.307
		Total	6	24	17.68	4.806
	Parental psycho-logical control (Score range 8 to 24)	Female	8	24	14.26	3.332
		Male	8	22	14.11	3.363
		Total	8	24	14.18	3.339
Peer influence	Peer connection (Score range 3 to 15)	Female	3	15	9.44	2.710
		Male	3	15	10.49	2.553
		Total	3	15	9.95	2.680
	Peer regulation (Score range 2 to 10)	Female	2	10	8.55	2.178
		Male	2	10	8.24	2.150
		Total	2	10	8.40	2.165
	Peer psycholo-gical control (Score range from 4 to 20)	Female	4	19	9.23	3.863
		Male	4	20	9.66	3.965
		Total	4	20	9.44	3.908
School influence	School regulation (Score range 3 to 15)	Female	3	15	6.52	4.629
		Male	3	15	7.32	4.714
		Total	3	15	6.91	4.675
	Teachers' concern (Score range 4 to 20)	Female	5	20	12.09	3.816
		Male	5	20	12.25	3.781
		Total	5	20	12.17	3.790
Community influence	Community disorganisation (Score range 6 to 18)	Female	6	18	12.90	2.657
		Male	6	18	12.17	2.827
		Total	6	18	12.55	2.757
	Community psychological control (score range 3 to 15)	Female	3	15	10.45	2.879
		Male	3	15	8.97	3.129
		Total	3	15	9.73	3.085

From the table above, it is evident that participants' scores have a wide range in each of the independent variables (contextual factors). On all the subscales, participants' scores range from the minimum value to the maximum value, with the exception of teachers' concern. The mean scores of each of the contextual factors were higher than the mid-points of the score ranges. Parental limit setting has a mean of 10.72 and a mid-point mark of 5. Parental monitoring has a mean of 17.68 and a mid-point mark of 9. Parental psychological control has a mean of 14.18 and a mid-point mark of 8. Peer connection has a mean of 9.95 and a mid-point mark of 6. Peer regulation has a mean of 8.40 and a mid-point mark of 4. Peer psychological control has a mean of 9.44 and a mid-point mark of 8. School regulation has a mean of 6.91 and a mid-point mark of 6. Teachers' concern has a mean of 12.17 and a mid-point mark of 8. Community disorganisation has a mean of 12.55 and a mid-point mark of 6. Lastly, community psychological control has a mean of 9.73 and a mid-point mark of 6.

5.1.2 Inferential statistics

Inferential statistics are used to make interpretations from a smaller group of data (sample) to a possible larger group (population) (Salkind, 2013). The results of the inferential statistics performed in relation to the two research questions are presented in the next sections.

5.1.2.1 Results pertaining to the differences between gender groups

The MANOVA conducted to investigate whether there were statistically significant differences in risk-taking behaviour between males and females yielded statistically significant results for the combined dependent variables (violence, substance abuse and risky sexual behaviour) (F = 10.526; Wilks' Lambda = 0.507; p = 0.000; partial eta squared = 0.493). Considering the practical significance (partial eta squared = 0.493), the effect size in this results shows great practical significance (Steyn, 1999). Since there was a significant difference in the results, ANOVAs were performed to determine which dependent variables showed significant differences. The results of the ANOVAs are displayed in Table 8.

Table 8

ANOVA Results Regarding the Gender Differences in Various Risk-taking Behaviours

Variables		***F***	***p***	**Partial eta squared**
Violence		8.791	0.003**	0.045
Substance use	Tobacco use	20.419	0.000**	0.098
	Alcohol use	22.187	0.000**	0.106
	Marijuana use	71.882	0.000**	0.277
	Other drug use	4.820	0.029*	0.025
	Total substance use	56.234	0.000**	0.230
Risky sexual behaviour		87.182	0.000**	0.317
Total risk-taking behaviour		**87.123**	**0.000****	**0.317**

**p < = 0.05*

***p< = 0.01*

All eight ANOVAs performed were statistically significant on the 1% level of significance, apart from one (drug use), which was significant on the 5% level of significance. Thus, all types of risk-taking behaviour showed statistically significant differences between males and females.

An inspection of the mean scores (see Table 6) indicates that males scored higher on all types of risk-taking behaviour. For violence, males (M = 13.60; SD = 3.512) scored higher than females did (M = 12.21; SD = 2.908). Males (M = 56.99; SD = 15.761) also scored higher with regard to substance use than females did (M = 41.69; SD = 12.230). With regard to risky sexual behaviour, males (M = 19.90; SD = 6.511) scored higher than females did (M = 11.96; SD = 5.175). When examining overall risk-taking behaviour, males (M = 90.49; SD = 20.450) reported more risk-taking behaviour than females did (M = 65.87; SD = 15.736).

When using the guidelines provided by Steyn (1999), the practical significance of the results is either small (e.g. substance use, partial eta squared = 0.230) or of medium effect (marijuana, partial eta squared = 0.277; risky sexual behaviour, partial eta squared = 0.317; overall risk-taking behaviour, partial eta squared = 0.317).

5.1.2.2 Results pertaining to the variance in risk-taking behaviour that can be explained by the various contextual factors

As part of the multiple regression analysis, the correlations between the various contextual factors and risk taking behaviour (total scale) were undertaken. The results are displayed in Table 9.

Table 9

Correlations between the Various Variables

Contextual factors		**Risk-taking behaviour**	***p***
Parental influence	Parental limit setting	-0.178**	0.007
	Parental monitoring	-0.182**	0.005
	Parental psychological control	0.172**	0.008
Peer influence	Peer connection	0.281**	0.000
	Peer regulation	-0.071	0.161
	Peer psychological control	0.088	0.111
School influence	School regulation	0.069	0.168
	Teachers' concern	-0.008	0.457
Community influence	Community disorganisation	0.007	0.463
	Community psychological control	0.026	0.358

**p < = 0.01

Note: In table 9, risk-taking behaviour refers to all three categories of risk-taking behaviour, namely violence, substance use and risky sexual behaviour.

Four significant correlations were found at the 1% level of significance. Parental limit setting and monitoring correlate negatively with risk-taking behaviour, while parental psychological control and peer connection have significant positive correlations with risk-taking behaviour.

The standard multiple regression analysis investigating whether a significant amount of variance in risk-taking behaviour can be explained by the contextual factors (parents, peers,

school, and community), yielded an R = 0.398 and R^2 = 0.159, indicating that contextual factors (parents, peers, schools, and communities) explain 15.9% of the variance in risk-taking behaviour. This is significant at the 1% level of significance (F = 3.451; p = 0.000). Two contextual factors make unique significant contributions, namely parental monitoring (Beta = -0.144; p = 0.044) and peer connection (Beta = 0.285; p = 0.000). Parental monitoring is significant at the 5% level of significance and peer connection at the 1% level of significance. Parental monitoring uniquely explains 0.2% of the variance in risk-taking behaviour, and peer connection uniquely explains 7.95% of the variance.

5.2 Discussion of the results

The purpose of this section is to discuss the results in relation to the theoretical framework of this study, as well as previous research in this field.

5.2.1 Prevalence of risk-taking behaviour

With regard to the manifestation of risk-taking behaviour in this sample, scores on violence and substance use tend to be towards the lower end of the test instrument range, while scores regarding risky sexual behaviour tend to be towards the higher end of the test instrument range. However, these results can be interpreted only when considering the analyses of the individual items in relation to other studies.

With regard to violence, 46.9% of the participants in this study reported being in one or more physical fight during the previous 12 months. The results obtained in this study are higher than the results reported in the Second South African Youth Risk Behaviour Survey, in which it was noted that 31.3% of learners in South Africa were involved in one or more physical fights in a six-month period (Reddy et al., 2010). This indicates only slightly higher prevalence if the periods of six months and twelve months are considered. When comparing these results to the results of the US study using the YRBS, the current sample portrays a far higher prevalence for violent behaviour than the US sample in which only 8.1% of the participants reported having been involved in physical fights in a twelve-month period (Centers for Disease Control and Prevention, 2013b).

With regard to substance use, 14.9% of the participants in this study reported smoking between two and five cigarettes per day, and 2.6% reported smoking more than twenty cigarettes per day. This is lower than the results reported by Reddy et al. (2010), in which only 5.8% of the participants were frequent smokers.

With regard to alcohol use, 62.9% of the participants in this study had at least one episode of binge drinking (five or more drinks in a few hours) during the last 30 days, which is more than double than Reddy et al (2010) reported and in line with results obtained by Weir-Smith (2001). Reddy et al. (2010) found that only 28.5% of learners had engaged in binge drinking on one or more days during a 30-day period. In the Gauteng and Limpopo provinces, it was found that 50% of learners reported current alcohol use (Weir-Smith, 2001). In the US, the rates were lower than in South Africa, and 6.1% of learners also engaged in binge drinking in a 30-day period, with the prevalence including mostly males (Centers for Disease Control and Prevention, 2013b).

With regard to drug abuse, 44.3% of participants in this study have smoked marijuana at least once in their life, with 8.8% of learners having smoked marijuana more than 100 times. The Second South African Youth Risk Behaviour Survey found that a total of 9.7% of learners used dagga on one or more days in a period of 30 days (Reddy et al., 2010), which is lower than the 24.4% of learners in the US (Centers for Disease Control and Prevention, 2013b). With regard to other drugs, participants in this study showed a lower prevalence rate than in the case of marijuana, with 8.8% of learners having used cocaine at least once in their lives, and 1.5% of learners having used heroin.

With regard to risky sexual behaviour, this study shows that 71.1% of learners have had sex before in their life, with 23,2% having had sex before the age of 13 years. These results are higher that results reported by Amoateng et al. (2014) in the North-West Province of South Africa, where they found that 47% of adolescent males reported that they had had sex before in their life and 23% of females reported that they had had sex. The figures in the results of this study are also almost twice as high as the figures of the results in the Second South African Youth Risk Behaviour Survey, which reported that 37.5% of South African learners had had sex during their lifetime, with 12.6% of learners having had sexual intercourse before the age of 14 years (Reddy et al., 2010). South Africa has a higher prevalence of risky sexual behaviour when compared to the US. In the US, 46.8% of learners have had sexual intercourse somewhere

during their lives with 5.6% before the age of 13 years (Centers for Disease Control and Prevention, 2013b).

Possible explanations for the prevalence rates of risk-taking in South Africa can be understood better by examining Bronfenbrenner's ecological theory, as each system has an influence and is influenced by other systems. Bronfenbrenner's basic assumption is that humans cannot be understood in isolation, but must be considered in the context of their relationships with the environment (Bronfenbrenner, 1976). Bronfenbrenner also believes that events occurring in individuals' surroundings affect these individuals, even if they are not present (Rosa & Tudge, 2013). South Africa has a unique context, and various different influences affect adolescent risk-taking behaviour.

5.2.2 Gender differences with regard to risk-taking behaviour

The following was the first research question posed in this study: Are there significant differences in the risk-taking behaviour (violence, substance use, and risky sexual behaviour) of adolescent males and females? It was hypothesised that there will be significant differences between adolescent males and females in all three types of risk-taking behaviour (violence, substance use, and risky sexual behaviour). Confirming this hypothesis, significant gender differences in risk-taking behaviour were found, with males being more prone to risk-taking behaviour in all three categories (violence, substance use, and risky sexual behaviour).

5.2.2.1 Gender differences with regard to violence

As in various other international and national research studies, the males in this study tended to be more violent than the females were. Both Reddy et al. (2010) and the Centers for Disease Control and Prevention (2013) reported that males portrayed higher incidences of violence than females did.

Various possible explanations can be provided for the higher prevalence of violence among males. One of the basic explanations is that males are biologically different from females. Males have higher levels of testosterone, which drastically increases during adolescence (Morgan & Huebner, 2009). An increased level of testosterone has been associated with aggression, dominance, and violent acts (Mims, 2007).

Individual traits that have been associated with violence include hyperactivity, impulsivity, poor academic performance, and conduct problems at a young age (Herrenkohl et al., 2000; Massetti et al., 2011). According to Bennett, Farrington and Huesmann (2005), hyperactivity and impulsivity are strong individual traits that predict later involvement in crime and violence. Interestingly, ADHD (characterised by impulsivity and hyperactivity) is more common in males than in females with a ratio ranging between 1 and 2 and between 1 and 9. This indicates that, for every woman with ADHD, there are two to nine men with ADHD (Sadock et al., 2007). Furthermore, males are also three to four times more likely to suffer from learning disorders (Sadock et al., 2007) and neurodevelopmental disorders (Bennett et al., 2005). Thus, if these traits are more prevalent in males, it indicates that males are more prone to show violent behaviour.

Another explanation for engagement in violence can be drawn from the theory of learned behaviour, which indicates that adolescents learn through modelling and their interactions with others (Herrenkohl et al., 2000). Bennett et al., (2005) mention that children and adolescents are brought up with gender specific roles and gender expectations. Males often play with toys such as guns, participate in sports such as wrestling, and associate with heroes who fight battles or win wars. Males' interaction with their peers might also be more aggressive in nature, as they engage in gender-specific games and sports (Bennett et al., 2005).

The family also plays a role in the development of violent adolescent behaviour. Violent parents, family conflict, and harsh or inconsistent parenting can be family predictors of violent behaviour during adolescence (Herrenkohl et al., 2000; Massetti et al., 2011; Van der Merwe & Dawes, 2007). According to Bennett et al. (2005), parents are less likely to quarrel in front of their daughters than in front of their sons, and boys tend to receive harsher discipline than girls. Therefore, it can be hypothesised that males' biological inclination, delayed development, earlier expose/witnessing of violence, and socially reinforced gender roles place them at more risk for aggressiveness and tendencies towards violence.

5.2.2.2 Gender differences with regard to substance use

With regard to substance use, males in this study reported more substance use (including tobacco use, alcohol use, marijuana, and other drug use) than females did. Various national

statistics support these findings, as they report higher levels of substance use in males (Johnston et al., 2010; Substance Abuse and Mental Health Services Administration, 2010). While girls reported higher or equivalent levels of substance use in early adolescence (Biehl, Natsuaki, & Ge, 2007; Duncan, Duncan, & Strycker, 2006), boys show a higher increases in substance use over time, which can explain the higher levels of substance use during middle and late adolescence (Chen & Jacobson, 2012).

Family and parental influence plays a significant role in the development of substance abuse. According to Nash, McQueen, and Bray (2005), a lack of parental supervision and parental monitoring plays a significant role in substance abuse. During adolescence, males receive less parental supervision and parental control than females do (Borawski, Ievers-Landis, Lovegreen, & Trapl, 2003). Less parental monitoring increases adolescents' chances to be exposed to social elements, such as reckless peers and community violence (Mc Adams, Salekin, Marti, Lester, & Barker, 2014). In turn, this increases the likelihood that males will abuse drugs easier in comparison with females.

Peer relationships are described as a major risk factor for the onset of substance use. It is known that adolescents spend increasingly more time with peers and are more susceptible to their influence (Louw et al., 2007). Adolescents may be more prone to substance use if they perceive from their peers that it is normal and acceptable to use substances (U.S. Department of Health and Human Services, 2000). A major difference between male and female friendship is that a female's transition to opposite-sex friendships occurs earlier than is the case with boys (Poulin & Pedersen, 2007). Mc Adams et al. (2014) explain that opposite-sex friendships/relationships may reduce boys' involvement in substance use. It is proposed that, because males enter into opposite-sex relationships only later, they might engage in more and earlier substance use.

5.2.2.3 Gender differences with regard to risky sexual behaviour

With regard to risky sexual behaviour, more males than females in this study engaged in risky sexual behaviour. These results corroborate those of Flisher, Reddy, Muller, and Lombard (2003), who documented that, in a large sample of adolescents in Cape Town, by the age of 14 years, 23.4% of males and 5.5% of females had had sexual intercourse. This discrepancy in the amount of males and females who have had sex decreased with age. At 19 years of age, 61.8%

of males and 58.2% of females had had sexual intercourse (Flisher, Reddy, Muller, & Lombard, 2003).

Men engage more in risky sexual behaviour, for numerous reasons. Firstly, people who engage in substance use are more prone to engage in risky sexual behaviour (Buttmann, Nielsen, Munk, Liaw, & Kjaer, 2011). In this study, and in various other studies (Johnston et al., 2010; Substance Abuse and Mental Health Services Administration, 2010), it was found that males engaged more in substance use than females did.

Secondly, peer influence can also explain why males are more prone to engage in risky sexual behaviour. Males often experience peer pressure to engage in risky sexual behaviour to prove their manliness, and in male peer groups, there is a perception that having many sexual partners gives one status (Eaton, Flisher, & Aarø, 2003). Negative attitudes towards using condoms are also encountered in male peer groups (MacPhail & Campbell, 2001). Although females experience peer pressure, it is often less and results in exclusion from conversations rather than mocking (Eaton et al., 2003). Owing to this, males are more likely to engage in risky sexual behaviour than females are, specifically to prove manliness or obtain status.

5.2.3 The role of contextual factors in explaining the variance in risk-taking behaviour

The following was the second research question posed in this study: Can a significant amount of variance in risk-taking behaviour be explained by parental, peer, school, and community systems? It was hypothesised that parental, peer, school, and community systems would explain a significant amount of variance in risk-taking behaviour, with certain contextual factors (parental psychological control, peer connection, peer psychological control, community disorganisation, and community psychological control) being associated positively with risk-taking behaviour, while others (parental limit setting, parental monitoring, peer regulation, teachers' concern, and school regulation) being associated negatively with risk-taking behaviour.

In this study, the combined contextual factors (parents, peers, schools, and communities) explained 15.9% of the variance in risk-taking behaviour. This is a confirmation of Bronfenbrenner's arguments that systems, environmental conditions, and interactions affect individual behaviour (Bronfenbrenner & Morris, 2006). Individuals and their environments are

a system of interdependent effects, with reciprocal relationships, where a change in one system will inevitably bring about change in another (Bronfenbrenner, 1979).

In this study, only two of the contextual factors, namely parental monitoring and peer connection, made unique significant contributions to the explanation of variance in risk-taking behaviour. Parental monitoring correlated negatively with risk-taking behaviour, implying that control that is more parental relates to less risk-taking behaviour. Furthermore, peer connection had significant positive correlation with risk-taking behaviour, indicating that the more connection with peers adolescents have, the more they will engage in risk-taking behaviour.

Regarding parental monitoring, this study showed that parental monitoring correlated negatively with risk-taking behaviour. Adolescents whose parents implement efforts to gain knowledge of their behaviour are less likely to engage in risk-taking behaviour (Arım et al., 2010). Parental monitoring reduces adolescent involvement in risk-taking behaviour and association with peers who engage in risky behaviour (Baptiste et al., 2007; Véronneau & Dishion, 2010). Parental monitoring is one of the most reliable predictors of positive child development and the avoidance of problematic behaviour such as risk-taking behaviour (Amoateng et al., 2006; Darling, 2007; Wang et al., 2014a). Other researchers found that lower levels of parental knowledge and monitoring were linked with increased risk-taking behaviour in adolescence that included cigarette smoking, substance and alcohol use, violence, and sexual risky behaviour (DiClemente et al., 2001; Lahey et al., 2008; Reynolds et al., 2011). A reason for the above-mentioned is that, with higher parental monitoring, adolescents have less time, place, and/or opportunities to engage in risk-taking behaviour (Feldstein & Miller, 2006; Kalina et al., 2013).

Regarding peer connection, this study supports the notion that the more time adolescents spend with their peers, and the more connected they are, the higher the risk for engagement in risk-taking behaviour is. This correlates with previous research. Telzer et al. (2015) indicated that peer connectedness and a strong peer bond with friends would increase risk-taking behaviour in adolescents. According to Smith et al. (2014), adolescents are more likely to take risks when they are with their peers than when they are alone, suggesting that peers contribute to risk-taking behaviour. However, it is contradictory to other studies. Cohen et al., (2001) state that peer connection can decrease adolescents' chances to engage in risk-taking behaviour because adolescents who do not have many friends and who do not spend time with them have less

social support. Social support acts as a buffer against stress and, therefore, adolescents might engage in more risk-taking behaviour (Cohen et al., 2001). Another explanation can be the type or quality of peer relationships (Telzer, Fuligni, Lieberman, Miernicki, & Galvan, 2015). According to Telzer et al. (2015), peer relationships characterised by conflict are associated with more risk-taking behaviour, while peer relationships characterised by support are associated with less risk-taking behaviour

5.3 Chapter summary

In this chapter, the results obtained in this study were presented and discussed. The results section of this chapter included the descriptive statistics and inferential statistics. The results were discussed in relation to the theoretical framework of this study and previous literature in the field. In the next chapter, the main arguments of the study, limitations of the current study, and recommendations for future studies are discussed.

CHAPTER 6

Key Findings, Limitations and Recommendations

In this chapter, the most significant findings of the research are presented. Next, the limitations of the present study are given. Finally, the chapter concludes with recommendations for future research, and practical applications are suggested.

6.1 Summary of the most significant findings

The primary aim of the study was to determine the role of various systems on risk-taking behaviour of adolescent males and females.

The prevalence of risk-taking behaviour was high among the adolescents participating in this study. The study showed that males engage more frequently in all types of risk-taking behaviours (violence, substance use, and risky sexual behaviour) than females do. Biological inclinations (Morgan & Huebner, 2009), developmental delays (Herrenkohl et al., 2000; Massetti et al., 2011), socially reinforced gender roles (Bennett et al., 2005), parental practices (Mc Adams et al., 2014), and peer influence (Eaton et al., 2003) can be provided as possible explanations for this.

As far as the contextual factors affecting adolescent risk-taking behaviour is concerned, the study found that peers (in the form of peer connection) and parents (in the form of parental monitoring) contribute the most. Many researchers have confirmed the important role that parents and peers play in adolescent development (Geldard & Geldard, 2010; Santrock, 2009; Shaffer, 2001; Wang et al., 2014b). The significant negative correlation between risk-taking behaviour and parental monitoring confirms that adolescents whose parents make efforts to gain knowledge of their behaviour are less likely to engage in risk-taking behaviour (Arım et al., 2010). The significant positive correlation between risk-taking behaviour and peer connection confirms that the more time adolescents spend with their peers, and the more connected they are, the higher the risk for engagement in risk-taking behaviour is (Smith et al., 2014; Telzer et al., 2015).

From a bio-ecological systems perspective (Bronfenbrenner, 1979; Leonard, 2011), the study noted that the microsystem was most influential in adolescent behaviour The microsystem refers to all the processes, activities, and relationships that occur in individuals' immediate environments and includes individuals' inner circles (Guhn & Goelman, 2011). Thus, the findings of this study are in alignment with theory, as it can be expected that the systems closest to individuals will have the most influence on them (Hersen, Thomas, & Ammerman, 2006).

In conclusion, this study contributes to the field of psychology, as it provides a better explanation of the gender differences noted in risk-taking behaviour and the contributing causes from a bio-ecological systems perspective. This information can be valuable information for teachers, counsellors, and psychologists working with adolescents and can be used to facilitate effective intervention programmes in schools and assist with meaningful therapeutic interventions by therapists.

6.2 Limitations of the study

In this research study, some limitations exist; therefore, the results should be interpreted while considering these limitations.

In this study, a quantitative, non-experimental approach with a descriptive, correlational, and criterion group research design was utilised. One possible limitation in using a quantitative research approach is that it cannot provide the researcher with in-depth understanding of the variables and their relation to one another (Tewksbury, 2009). Furthermore, a correlational research design cannot offer explanations for the causality of relationships (Stangor, 2011).

In this study, a non-probability, convenience sampling method was employed. This type of sampling may be biased, as not everyone in the population has the same chance of being selected. Therefore, the findings of this study cannot be generalised to the general population in South Africa.

In this study, data were collected using self-report questionnaires. A limitation of self-report measures is that answers obtained by using a self-report questionnaire can be deceptive (Barker et al., 2005; Coolican, 2004). Participants may portray themselves in a socially desirable manner, do not know themselves well, or may misinterpret the questions asked. The fact that

the questionnaire used was available only in English might have complicated the matter. This might explain the low reliability scores in some of the subscales (e.g. violence and peer connection).

Regardless of the limitations mentioned above, it is anticipated that the study could offer improved insight into risk-taking behaviour, as well as how various systems (parents, peers, schools, and communities) contribute to risk-taking behaviour of black adolescents in the South African context.

6.3 Recommendations for future research

To overcome the above mentioned limitations, future studies can consider using a mixed-method approach. To support the data obtained from self-report questionnaires, researchers could conduct semi-structured interviews or observe participants in their environments. The questionnaires used can also be translated into other languages so that participants can answer the questions in their home language. Random sampling can be used to obtain a larger sample. Stratified sampling methods can be considered to obtain a sample that is equally distributed with regard to constructs such as age, ethnicity, and region.

Moving beyond the scope of this study, it can be beneficial to explore systemic influences other than influences by parents, peers, schools, and communities on risk-taking behaviour. Possible other influences that can be explored are siblings, the media, laws in South Africa, religion, and culture. Furthermore, conducting a study that focuses on more categories of risk-taking behaviour (and not only violence, substance use, and risky sexual behaviour) can be beneficial. Other categories that could be explored include suicide, health-related behaviour, and unintentional injuries (such as not wearing a safety belt).

Criterion group studies that compare various groups of adolescents with one another can also be insightful. In addition to gender differences (which were the focus of this study), studies that compare groups in different developmental stages (e.g. early and late adolescence) can be interesting. Comparisons between different cultural or ethnic groups can also yield valuable information.

Longitudinal research studies could also be valuable if the researcher assesses the long-term effects of various systems (parents, peers, schools, and communities) on individual development and risk-taking behaviour.

6.4 Chapter summary

In this chapter, the key contributions obtained from this study were highlighted. Firstly, this study showed that there are differences in the prevalence of risk-taking behaviour between males and females and concluded that males are more prone to risk-taking behaviour than females are. Furthermore, it was found that four contextual factors (parental limit setting, parental monitoring, peer connection, and parental psychological control) combined explain 15.9% of the variance in risk-taking behaviour. This study found that parental monitoring uniquely explains 0.2% of the variance in risk-taking behaviour and peer connection uniquely explains 8% of the variance in risk-taking behaviour. Finally, this chapter included a discussion of the limitations of the current study and recommendations for future studies.

This study contributed to the field of psychology as it explored risk-taking behaviour in adolescents from a bio-ecological perspective. It contributes to our understanding of adolescent engagement in risk-taking behaviour and adds to the field of knowledge regarding the role of various systems in risk-taking behaviour. It shows that individuals should not be viewed separately from their environments. This can assist in the development of appropriate prevention, intervention, and treatment programmes. From this study, it is recommended that interventions in South Africa should focus on adolescents' micro systems, such as their parents and peers.

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STUDY BUDDY PROAGRAMME RESEARCH

LETTER OF INFORMED CONSENT

Dear Participant

Thank you for your willingness to participate in this study.

This is a survey about your behaviour as well as your environment. It has been developed to help us determine what behaviour affect your health, and how your environment contribute to these.

Participation in this study is voluntary and should you feel the need, you may withdraw from the study at any time. All your identifying data will be held in the strictest confidence. While the data will be published, all information will be kept confidential and responses will be kept anonymous. The answers you give will be kept private.

If you have any questions or concerns please feel talk to the Study Buddy student facilitator.

I have read and understand the information on the form and I consent to volunteer to be a participant in this study. I understand that my responses are completely confidential and that I have the right to withdraw at any time.

Name: _____

Signature: _____

Date: _____

Survey

Directions: Please make sure to read every question, and mark only the most correct option. **Only one answer** should be marked at each question.

How old are you?	12 or younger	13	14	15	16	17	18 or older
What is your gender?	Female			Male			
In what grade are you?	9th		10th		11th		12th

The next questions ask about violence-related behaviors.

During the past 30 days, on how many days did you carry **a weapon** such as a gun or a knife?	0 days	1	2 or 3	4 or 5	6 or more			
During the past 30 days, on how many days did you **not** go to school because you felt you would be unsafe at school or on your way to or from school?	0 days	1	2 or 3	4 or 5	6 or more			
During the past 12 months, how many times has someone threatened or injured you with a weapon such as a gun or a knife?	0	1	2 or 3	4 or 5	6 or 7	8 or 9	10 or 11	12 or more
During the past 12 months, how many times were you in a physical fight?	0	1	2 or 3	4 or 5	6 or 7	8 or 9	10 or 11	12 or more
During the past 12 months, how many times were you in a physical fight in which you were injured and had to be treated by a doctor or nurse?	0 times	1	2 or 3	4 or 5	6 or more			
Have you ever been physically forced to have sexual intercourse when you did not want to?	Yes	No						
During the past 12 months, how many times did someone you were dating or going out with physically hurt you on purpose? (Count such things as being hit, slammed into something, or injured with an object or weapon.)	0 times	1	2 or 3	4 or 5	6 or more			
During the past 12 months, how many times did someone you were dating or going out with force you to do sexual things that you did not want to do? (Count such things as kissing, touching, or being physically forced to have sexual intercourse.)	I did not date or go out with anyone during the past 12 months	0	1	2 or 3	4 or 5	6 or more		

The next questions ask about tobacco use (smoking).

Have you ever tried cigarette smoking, even one or two puffs?	Yes				No		
How old were you when you smoked a whole cigarette for the first time?	I have never smoked a whole cigarette	8 or younger	9 or 10	11 or 12	13 or 14	15 or 16	17 or older
During the past 30 days, on how many days did you smoke cigarettes?	0 days	1 or 2	3 to 5	6 to 9	10 to 19	20 to 29	All 30 days
During the past 30 days, on the days you smoked, how many cigarettes did you smoke **per day**?	I did not smoke cigarettes during the past 30 days	Less than 1 cigarette per day	1 per day	2 to 5 per day	6 to 10 per day	11 to 20 per day	More than 20 per day
During the past 30 days, how did you **usually** get your own cigarettes? (Select only **one** response.)	I did not smoke cigarettes during the past 30 days	I bought them in a store such as a convenience store, supermarket, discount store, or gas station	I bought them from a vending machine	I gave someone else money to buy them for me	I borrowed (or bummed) them from someone else	A person 18 years old or older gave them to me	I took them from a store or family member	I got them some other way

The next questions ask about drinking alcohol. This includes drinking beer, wine, wine coolers, and liquor such as rum, gin, vodka, or whiskey. For these questions, drinking alcohol does not include drinking a few sips of wine for religious purposes.

During your life, on how many days have you had at least one drink of alcohol?	0 days	1 or 2	3 to 9	10 to 19	20 to 39	40 to 99	100 or more
How old were you when you had your first drink of alcohol other than a few sips?	I had never had a drink of alcohol other than a few sips	8 years or younger	9 or 10	11 or 12	13 or 14	15 or 16	17 or older
During the past 30 days, on how many days did you have at least one drink of alcohol?	0 days	1 or 2	3 to 5	6 to 9	10 to 19	20 to 29	All 30 days
During the past 30 days, on how many days did you have 5 or more drinks of alcohol in a row, that is, within a couple of hours?	0 days	1	2	3 to 5	6 to 9	10 to 19	20 or more

During the past 30 days, what is the largest number of alcoholic drinks you had in a row, that is, within a couple of hours?	I did not drink alcohol during the past 30 days	1 or 2 drinks	3	4	5	6 or 7	8 or 9	10 or more drinks

During the past 30 days, how did you **usually** get the alcohol you drank?	I did not drink alcohol during the past 30 days	I bought it in a store such as supermarket, , or gas station	I bought it at a restaurant, bar, or club	I bought it at a public event such as a concert or sporting event	I gave someone else money to buy it for me	Someone gave it to me	I took it from a store or family member	I got it some other way

The next questions ask about marijuana use. Marijuana also is called dagga, grass or pot.

During your life, how many times have you used marijuana?		0 times	1 or 2	3 to 9	10 to 19	20 to 39	40 to 99	100 or more
How old were you when you tried marijuana for the first time?	I had never tried marijuana	8 years or younger	9 or 10	11 or 12	13 or 14	15 or 16	17 or older	
During the past 30 days, how many times did you use marijuana?		0 times	1 or 2	3 to 9	10 to 19	20 to 39	40 or more	

The next questions ask about other drugs.

During your life, how many times have you used **any** form of cocaine, including powder, crack, ortik?	0 times	1 or 2	3 to 9	10 to 19	20 to 39	40 or more
During your life, how many times have you sniffed glue, breathed the contents of aerosol spray cans, or inhaled any paints or sprays to get high?	0 times	1 or 2	3 to 9	10 to 19	20 to 39	40 or more
During your life, how many times have you used **heroin** (also called smack, junk, or China White)?	0 times	1 or 2	3 to 9	10 to 19	20 to 39	40 or more
During your life, how many times have you used **methamphetamines** (also called speed, crystal, crank, or ice)?	0 times	1 or 2	3 to 9	10 to 19	20 to 39	40 or more
During your life, how many times have you used **ecstasy** (also called MDMA)?	0 times	1 or 2	3 to 9	10 to 19	20 to 39	40 or more
During your life, how many times have you taken **steroid pills or shots** without a doctor's prescription?	0 times	1 or 2	3 to 9	10 to 19	20 to 39	40 or more
During your life, how many times have you taken a **prescription drug** (such as OxyContin, Percocet, Vicodin, codeine, Adderall, Ritalin, or Xanax) without a doctor's prescription?	0 times	1 or 2	3 to 9	10 to 19	20 to 39	40 or more
During your life, how many times have you used a needle to inject any **illegal** drug into your body?	0 times		1		2 or more	
During the past 12 months, has anyone offered, sold, or given you an illegal drug **on school property**?	Yes			No		

The next questions ask about sexual behavior.

Have you ever had sexual intercourse?	Yes				No			
How old were you when you had sexual intercourse for the first time?	I have never had sexual intercourse	11 years or younger	12	13	14	15	16	17 years or older
During your life, with how many people have you had sexual intercourse?	I have never had sexual intercourse	1 person	2	3	4	5	6 or more people	
During the past 3 months, with how many people did you have sexual intercourse?	I have never had sexual intercourse	I have had sexual intercourse, but not during the past 3 months	1 person	2	3	4	5	6 or more people
Did you drink alcohol or use drugs before you had sexual intercourse the **last time**?	I have never had sexual intercourse		Yes		No			
The **last time** you had sexual intercourse, what **one** method did you or your partner use to **prevent pregnancy**? (Select only **one** response.)	I have never had sexual intercourse	No method was used to prevent pregnancy	Birth control pills	Condoms	An IUD (such as Mirena or ParaGard) or implant (such as Implanon or Nexplanon)	A shot (such as Depo-Provera), patch (such as Ortho Evra), or birth control ring (such as NuvaRing)	Withdrawal or some other method	Not sure

The following questions will measure parental behaviours.

How much do your parents (mother and father) really know about the following?

Who your friends are	Doesn't know	Knows a little	Knows a lot
Where you go at night	Doesn't know	Knows a little	Knows a lot
How you spend your money	Doesn't know	Knows a little	Knows a lot
What you do with your free time	Doesn't know	Knows a little	Knows a lot
Where you are most afternoons after school	Doesn't know	Knows a little	Knows a lot

How often do your parents do the following?

Restrict the amount of time you could watch television	Always	Often	Seldom	Never
Check to see whether your homework was done	Always	Often	Seldom	Never
Go over your homework with you	Always	Often	Seldom	Never
Check over papers you brought home that a teacher had graded	Always	Often	Seldom	Never
Set a time you had to be home on school nights	Always	Often	Seldom	Never
Set a time you had to be home on the weekends in the past one month	Always	Often	Seldom	Never

Which of the following indicate your parents' (mother's or father's) behaviour with regards to each of the statements.

Changes the subject, whenever I have something to say	Not like her	A bit like her	A lot like her
Is less friendly with me, if I do not see things her / his way	Not like her	A bit like her	A lot like her
Is always trying to change how I feel or think about things	Not like her	A bit like her	A lot like her
Blames me for other family members' problems	Not like her	A bit like her	A lot like her
Stops talking to me if I have hurt her / his feelings	Not like her	A bit like her	A lot like her
Frequently changes the rules I am supposed to follow	Not like her	A bit like her	A lot like her
Often interrupts me	Not like her	A bit like her	A lot like her
Avoids looking at me when I have disappointed him/her	Not like her	A bit like her	A lot like her

The following questions measures peer interaction

How often do you contact your friends through?

Phone call	Never	Once a month	Once a week	A few times a week	Every day
Go over to each other's' houses	Never	Once a month	Once a week	A few times a week	Every day
Go together for movie/skating/shopping/a sport event	Never	Once a month	Once a week	A few times a week	Every day

How often do your friends/peers?

Help you to do what is right	Never	Once a month	Once a week	A few times a week	Every day
Encourage you to follow the rules	Never	Once a month	Once a week	A few times a week	Every day

How often do your friends or peers?

Disagree with you	Never	Once a month	Once a week	A few times a week	Every day
Make you feel like your ideas aren't as good as his or hers	Never	Once a month	Once a week	A few times a week	Every day
Annoy or bug you	Never	Once a month	Once a week	A few times a week	Every day
Put you down	Never	Once a month	Once a week	A few times a week	Every day

The following questions measures school and teacher behaviour

Do you think that there is a need for more rules and regulations in your school regarding?

Stealing	Never	Seldom	Sometimes	Often	Always
Drug use	Never	Seldom	Sometimes	Often	Always
Violence and fighting	Never	Seldom	Sometimes	Often	Always

How many of your teachers?

Believe you can do well in school	None	Some	About half	Most	All
Are willing to help you if you need help on schoolwork	None	Some	About half	Most	All
Would be willing to help you if you told them about a problem you had	None	Some	About half	Most	All
Really listen to what you have to say	None	Some	About half	Most	All

The following questions measures aspects about your community

How often is the following disturbances present in your community?

Litter or trash on the sidewalks and streets	Often	Sometimes	Never
Graffiti on buildings and walls	Often	Sometimes	Never
Alcoholics and excessive drinking in public	Often	Sometimes	Never
Vacant or abandoned houses or storefronts	Often	Sometimes	Never
Burglary	Often	Sometimes	Never
Sale of drugs/alcohol	Often	Sometimes	Never

Are your neighbours?

Always interfering in my businesses	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly disagree
Nosy					
Always watching what your are doing					

This is the end of the survey.
Thank you very much for your help.

Appendix B: Approval Letter from the Department of Education

Enquiries: Motshumi KK
Reference:
Tel: 051 404 9290
Fax: 086 667 8678
E-mail: motshumikk@edu.fs.gov.za

education
Department of Education
FREE STATE PROVINCE

OFFICE OF THE DIRECTOR:
STRATEGICPLANNING, POLICY & RESEARCH

10 March 2014

Dr Naude L

RE: APPROVAL TO CONDUCT RESEARCH IN THE FREE STATEDEPARTMENT OF EDUCATION

1. This letter serves as an acknowledgement for receipt of your research request in the Free State Department of Education.
2. **Research topic:** Living and learning in Central South Africa
3. Approval is granted for you to conduct research in the Free State Department of Education.
4. This approval is subject to the following conditions:-
   - 4.1 The names of participants involved remain confidential.
   - 4.2 The structured questionnaires are completed and the **interviews are conducted outside normal tuition time or during free periods**.
   - 4.3 This letter is shown to all participating persons.
   - 4.4 A bound copy of the research document and a soft copy on a computer disc should be submitted to the Free State Department of Education (Strategic Planning, Policy& Research).
   - 4.5 You will be expected, on completion of your research study, to make a presentation to the relevant stakeholders in the Department.
   - 4.6 The attached ethics document must be adhered to in the discourse of your study in our department.
5. The costs relating to all the conditions mentioned above are your own responsibility.
6. You are requested to confirm acceptance of the above conditions in writing, within seven days after receipt of this letter. Your acceptance letter should be directed to:

DIRECTOR: STRATEGIC PLANNING,POLICY & RESEARCH;
Old CNA Building, Maitland Street OR Private Bag X20565, BLOEMFONTEIN, 9301

Thank you for choosing to research with us.We wish you every success with your study.

Yours faithfully,

MJ MOTHEBE (DIRECTOR: STRATEGIC PLANNING, POLICY & RESEARCH)

Directorate: Strategic Planning, Policy Development& Research – Private Bag X20565, Bloemfontein, 9300 - Room 301, Old CNA building,
Charlotte Maxeke, Bloemfontein 9300 – Tel: 051 404 9283/ Fax: 086 6678 678 E-mail: research@edu.fs.gov.za

Appendix C: Ethical Clearance from the University of the Free State

UNIVERSITY OF THE FREE STATE
UNIVERSITEIT VAN DIE VRYSTAAT
YUNIVESITHI YA FREISTATA

UFS·UV
HUMANITIES
GEESTESWETENSKAPPE

16 May 2014

Dr L. Naudé
Department of Psychology
UFS

Ethical Clearance Application: Living and learning in Central South Africa

Dear Dr Naudé

With reference to your application for ethical clearance with the Faculty of the Humanities, I am pleased to inform you on behalf of the Ethics Board of the faculty that you have been granted ethical clearance for your research. The committee discussed two issues that might be considered:

- Simplifying the informed consent form for these young participants
- Bearing in mind that some Grade 8 learners might still be 13 years of age which requires parental consent.

Your ethical clearance number, to be used in all correspondence, is:

UFS-HUM-2013-30

This ethical clearance number is valid for research conducted for one year from issuance. Should you require more time to complete this research, please apply for an extension in writing.

We request that any changes that may take place during the course of your research project be submitted in writing to the ethics office to ensure we are kept up to date with your progress and any ethical implications that may arise.

Thank you for submitting this proposal for ethical clearance and we wish you every success with your research.

Yours sincerely,

Katinka de Wet
Research Ethics Committee (Faculty of the Humanities)

Copy: Ms Charné Vercueil (Research Co-ordinator, Faculty of the Humanities)

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