

**LIFE STRESSORS AND RESOURCES AS PREDICTORS OF  
ADOLESCENT SUICIDE ATTEMPT**

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## DECLARATION

I, Catherine Sandra Campbell, declare that the dissertation submitted by me for the Magister Societatis Scientiae degree (Psychology) at the University of the Free State is my own independent work and has not previously been submitted by me at another university or faculty. I furthermore cede copyright of the dissertation in favour of the University of the Free State.

A handwritten signature in black ink that reads "C. S. Campbell". The letters are cursive and connected.

C. S. Campbell

30 January 2012

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My sincere thanks to the following significant influences in my life:

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## ABSTRACT

The continuing rise in adolescent suicide worldwide constitutes a serious public health challenge. Several environmental and personal factors, such as early losses, discordant relationships, poverty, abuse and other life crises have previously been associated with the rise in adolescent suicides. However, only a few South African studies have investigated the combined occurrence of these factors among the different racial groups. This study investigated the role of gender, race and psychosocial stressors and resources in attempted suicide among 1 033 Grade 11 and 12 learners from schools in the Free State Province, South Africa. A cross-sectional research design was applied. Participants completed a biographical questionnaire and the Life Stressors and Social Resources Inventory, Youth Form. Logistic regression analysis was used to identify stressors, resources and demographic variables that predict attempted suicide among the sample of learners.

The findings of the current study suggest that 12.5% of the sample had previously attempted suicide. Being coloured ( $p \leq .01$ ) and being female ( $p \leq .01$ ) significantly increased the likelihood of attempting suicide. Stressors significantly associated with the increased likelihood of attempting suicide for the whole group were stressors regarding Parents ( $p \leq .05$ ), Extended Family ( $p \leq .01$ ), Home and Money ( $p \leq .05$ ), and Negative Life Events ( $p \leq .01$ ). Resources significantly associated with the reduced likelihood of attempting suicide for the whole group were supportive relationships with Parents ( $p \leq .01$ ), with Boyfriend/Girlfriend ( $p \leq .01$ ) and Positive Life Events ( $p \leq .01$ ). These findings highlight the importance of

supportive relationships and stable home conditions for the well-being of adolescents.

The limitations of this study included an under-representation of black participants in the sample. Furthermore, owing to the cross-sectional design of the study, conclusions cannot be drawn with regard to any causal relationship between demographic variables, life stressors and resources, and attempted suicide. It is recommended that future research studies include factors such as self-esteem and sense of coherence.

**Keywords:** adolescent suicide, suicide attempt, life stressors, resources, race, gender, risk factors, protective factors, relationships, Free State Province, South Africa.

## OPSOMMING

Die voortgesette styging in adolessente selfmoord wêreldwyd is 'n ernstige uitdaging vir openbare gesondheid. Verskeie omgewings- en persoonlike faktore soos vroeë verlies, onmin in verhoudings, armoede, misbruik en ander lewenskrisisse is in die verlede met die styging in adolessente selfmoord in verband gebring. Daar is egter slegs 'n paar Suid-Afrikaanse studies wat hierdie faktore in kombinasie onder die verskillende rassegroepe ondersoek het. Die huidige studie ondersoek die rol van geslag, ras en psigososiale stressors en hulpbronne in selfmoordpogings onder 1 033 graad 11- en 12-leerders in skole in die Vrystaat Provinsie in Suid-Afrika. 'n Dwarssnit-navorsingsontwerp is toegepas. Deelnemers het 'n biografiese vraelys en die *Life Stressors and Social Resources Inventory, Youth Form* voltooi. 'n Logistiese regressie-analise is uitgevoer om die stressors, hulpbronne en demografiese veranderlikes wat selfmoordpogings onder die steekproef van leerders voorspel, te identifiseer.

Die huidige studie het bevind dat 12.5% van die steekproef al voorheen selfmoordpogings aangewend het. Die resultate het ook getoon dat bruin ( $p \leq .01$ ) en vroulike ( $p \leq .01$ ) adolessente 'n groter waarskynlikheid het om selfmoordpogings aan te wend. Stressors soos Ouers ( $p \leq .05$ ), Uitgebreide Familie ( $p \leq .01$ ), die Huis en Geld ( $p \leq .05$ ), en Negatiewe Lewensgebeurtenisse ( $p \leq .01$ ) is beduidend verbind met 'n groter waarskynlikheid vir selfmoordpogings vir die hele groep. Hulpbronne soos ondersteunende verhoudings met Ouers ( $p \leq .01$ ), Kêrel/Meisie ( $p \leq .01$ ) en Positiewe Lewensgebeurtenisse ( $p \leq .01$ ),

daarenteen, is verbind met 'n beduidend kleiner waarskynlikheid van selfmoordpogings vir die hele groep. Hierdie bevindinge beklemtoon die belangrikheid van ondersteunende verhoudings en stabiele huislike toestande vir die welsyn van adolessente.

Beperkings van die studie sluit in die onderverteenvoordiging van swart deelnemers in die steekproef. Weens die dwarsnit-ontwerp van die studie kan gevolgtrekkings ook nie oor enige oorsaaklike verhoudings tussen demografiese veranderlikes, lewenstressors en hulpbronne, en selfmoordpogings gemaak word nie. Daar word aanbeveel dat toekomstige navorsingstudies faktore soos selfagting en 'n gevoel van samehang insluit.

**Sleutelwoorde:** adolessente selfmoord, selfmoordpoging, lewenstressors, hulpbronne, ras, geslag, risikofaktore, beskermende faktore, verhoudings, Vrystaat Provinsie, Suid-Afrika.

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# CHAPTER 1

## 1. Introduction and Problem Statement

### 1.1. Introduction

Every completed suicide or suicide attempt prompts the question: “What was so intolerable that death beckoned more powerfully than life?” In the case of adolescent suicide, in particular, this question is even more urgent. This study investigates the influences in the life of an adolescent that play a possible role in suicidal behaviour. This chapter outlines the problem of adolescent suicide and serves as an orientation to the study.

### 1.2. Orientation and problem statement

Globally, suicide accounts for about one million deaths annually (WHO, 2010). Over the past 45 years, suicide rates have increased by 60% worldwide (WHO, 2010), making suicide the tenth leading cause of death, globally (WHO, 2009a). According to the World Health Organisation (2010), suicide is the second leading cause of death for those aged 10 to 24 years, and the third leading cause of adolescent death in the United States of America (USA), after homicide and vehicle accidents (Dave & Rashad, 2009; James, 2008). Despite fluctuating rates, the overall rate of suicide for children and adolescents in the USA has increased by an alarming 300% since the 1950's (Miller & Eckert, 2009). Among Greek adolescents aged 14 to 18 years, self-reported suicide attempts have doubled from 7.0% in 1984 to 13.4% in 2007 (Kokkevi, Rotsika, Arapaki, & Richardson,

2011). In general, the rates of suicide attempt are considered to be up to 20 times more frequent than those of completed suicide (WHO, 2010), and non-fatal suicidal behaviour is more prevalent among the younger than the older population (Krug, Dahlberg, Mercy, Zwi, & Lozano, 2002).

In South Africa, there has not been national, systematic mortality data collection on the suicide rates of the general population and most data regarding suicide comes from ad hoc studies (Meel, 2003). Since 1992, the quality of data on the cause of death has deteriorated as the data has no longer been based on inquest findings (Flisher, Liang, Laubscher, & Lombard, 2004). In South Africa, the ninth annual report of the National Injury Mortality Surveillance System (NIMSS) indicates that, for 2007, suicide was the third leading cause of non-natural deaths (10%) in the general population (Donson, 2008). Stark et al. (2010) found that the rate of completed suicide in the Bloemfontein and southern Free State areas was 10.9 per 100 000 population per year.

Flisher et al. (2004) found a significant increase in youth suicide in South Africa from 1968 to 1990. In the Transkei region, Meel (2003) found that 65% of suicidal deaths were recorded among teenagers and young adults. Schlebusch (2005), as well as Meehan, Peirson and Fridjhon (2007), further note increased suicidal behaviour among youths. The first and second South African National Youth Risk Behaviour Surveys (Reddy et al., 2003; Reddy et al., 2010) explored the prevalence of specific suicidal behaviours experienced by Grade 8 to 11 learners during the six months prior to each survey. The surveys show a disconcerting increase in suicide attempt, from 17% in 2002 to 21.4% in 2008 (Reddy et al., 2003; Reddy et al., 2010).



Other studies in South Africa indicate that, among the youth, the prevalence of suicide attempt ranges from 8% to 29% (Matshego & Madu, 2009). Madu and Matla (2003) found that 21% (N = 435) of the adolescents surveyed in the Limpopo Province had attempted suicide. The few studies conducted on suicide attempt among adolescents in the Free State Province indicate that the rate of attempted suicide is high. Mashego and Madu (2009) found that 14.8% (N = 142) of the adolescents surveyed around Welkom and Bethlehem in the Free State had previously attempted suicide. Reddy et al. (2010) found that, in the Free State, 20.4% (n = 1 244) of the adolescents surveyed had attempted suicide during the six-month period prior to the survey. Furthermore, five to six adolescents aged 14 to 19 years are being admitted daily at Pelonomi Hospital in Bloemfontein in the Free State following attempted suicide (N. Mosotho, personal communication, May 15, 2010). Although only a small proportion of those who attempt suicide ever complete suicide, it is important to investigate attempted suicide as it has been identified as a risk factor for completed suicide and is also an indicator of psychological distress among adolescents (Fedorowicz & Fombonne, 2007; Walsh & Eggert, 2008).

As far as gender differences are concerned, global trends show that, whereas more females attempt suicide, a higher number of males complete suicide (Barlow & Durand, 2009; Bridge, Goldstein & Brent, 2006; Krug et al., 2002; WHO, 2010). In South Africa, the NIMSS reported that, for 2007, 4.6 more males than females had completed suicide (Donson, 2008) and, similarly, in the Bloemfontein and southern Free State areas, 4.6 more males (82.1%) than females (17.7%) had completed suicide (Stark et al., 2010).

Global trends indicate that, with regard to racial differences, suicide rates have been higher among white people (Krug et al., 2002) although there is an increase in suicide among black people. In addition, there are high suicide rates among indigenous groups such as the Native Americans (Barlow & Durand, 2009; Bridge et al., 2006; Krug et al., 2002). The South African National Youth Risk Behaviour Surveys (Reddy et al., 2003; Reddy et al., 2010) and other studies (Madu & Matla, 2003; Mashego & Madu, 2009) indicate that suicidal behaviour is prevalent among youths of all races in South Africa. Reddy et al. (2010) found that, of the adolescents who had attempted suicide in the previous six months, the highest percentage according to race was coloured (25.2%), followed by white (21.6%), then black (20.9%) and Indian (14.4%).

Several different theoretical approaches have been used to explain suicidal behaviour. It is recognised that the causes of adolescent suicide can be social, psychological and biological (Barlow & Durand, 2009; Blumenthal, 1990). Sociological theories focus on social and environmental contexts and interactions, while psychological theories generally focus on individual, personal factors influencing suicidal behaviour such as self-esteem, hopefulness and coping styles (Blumenthal, 1990; George, 2009; Moos & Schaefer, 1993). Biological theories focus on heredity, genetic predisposition and neurobiological factors associated with depression, aggression, impulsivity and suicidality (Barlow & Durand, 2009).

Suicide is a complex phenomenon with multiple causes, prompting the use of an integrative approach which recognises the complex, multidirectional interactions between individual and environmental factors (Barlow & Durand, 2009; Blumenthal, 1990). The various theories highlight different aspects of the complex

dynamic of suicidality, and there has been a move towards approaches that integrate these perspectives.

An example of an integrated approach is the Integrated Stress and Coping Model of Moos and Schaefer (1993). The Integrated Stress and Coping Model describes the process in which the interactions between individual and environmental stressors and resources, together with life transitions and life crises, shape coping responses which, in turn, affect the health and well-being of the individual.

Studies have identified multiple, interrelated risk factors for suicidal behaviour, including hopelessness and anxiety (Walsh & Eggert, 2008), problems at school (Schlebusch, 2005; Walsh & Eggert, 2008), family distress (Walsh & Eggert, 2008), lower parental involvement (Sharaf, Thompson, & Walsh, 2009), parent-child conflicts (Bridge et al., 2006; Kőlves, 2010; Pillay & Wassenaar, 1997; Schlebusch, 2005) and frequent and high stress factors such as physical and sexual abuse (Bridge et al., 2006; Dinwiddie et al., 2000; Louw, Duncan, Richter, & Louw, 2007; Walsh & Eggert, 2008). Furthermore, financial insecurity can impact the family system in various ways leading to the increased stress levels of the adolescent as well as an increase in the risk of suicide attempt (Bernburg, Thorlindsson, & Sigfusdottir, 2009; Dupéré, Leventhal, & Lacourse, 2009; Kőlves, 2010).

Positive self-appraisal has been found to protect against suicidal behaviour (Johnson, Gooding, Wood, & Tarrier, 2010). The protective factors identified by Walsh and Eggert (2008) as significant included personal control, self-esteem and positive coping, having a sense of support and family support satisfaction. Secure

attachment with parents has been associated with high levels of self-esteem and self-efficacy (Sharaf et al., 2009). Furthermore, authoritative parenting and high self-control have been found to reduce the harmful effects of bullying victimisation on self-harm and suicidal ideation of adolescents (Hay & Meldrum, 2010).

Adolescence is a potentially turbulent stage of life during which the youth needs to adapt to marked physical changes, as well as challenging psychosocial tasks such as developing a unique identity, navigating romantic relationships and adapting to changes in relationships with parents (Louw, Louw, & Ferns, 2007; Sigelman & Rider, 2009). In South Africa, many adolescents face the additional challenges of rapid cultural change, violence, poverty, ill health and bereavement (Govender & Killian, 2001; Louw, Louw, et al., 2007).

Considering how little research has been done on suicide in South Africa and the high rates of suicide attempt reported in studies, there remains a need for further research on the prevalence of suicide attempt, together with the psychosocial risk and protective factors associated with suicide attempt, among South African adolescents, particularly those in the Free State Province.

### **1.3. Focus of the research**

The overarching aim of this study was to investigate the role of life stressors (risk factors) and social resources (protective factors) in attempted suicide, among a sample of adolescents in the Free State Province in South Africa. The objective of this study was therefore to identify those variables that distinguish groups of adolescents who have attempted suicide from those who have not attempted

suicide. Since the literature indicates that gender and race<sup>1</sup> may play an important role in suicide attempt, these biographical aspects were also investigated in this study as predictor variables.

In line with the purpose of this study, the following research question was formulated:

**To what extent can life stressors, resources and biographical variables be used to predict whether adolescents are at risk of attempting suicide?**

The specific goals of this study were to investigate the following among a multi-racial sample of adolescents in the Free State:

- the role of demographic factors, race and gender in attempted suicide;
- the role of certain psychosocial stressors in attempted suicide; and
- the role of certain psychosocial resources in attempted suicide.

## **1.4. Methodology**

### **1.4.1. Research design**

In order to achieve the goals of this study, a non-experimental, cross-sectional research design (Flick, 2011; Huysamen, 1996a) was used.

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<sup>1</sup> The black, white, coloured and Indian/Asian racial groups have been referred to in this study. The use of these terms does not imply acceptance of historically racist attitudes and assumptions. The racial groups have been used for comparison of conditions between these broad ethnic groups within this study and furthermore, for comparison of findings between different studies.

#### ***1.4.2. Participants and data gathering***

The data was collected during 2007 by the Department of Psychology as part of a broader research project on adolescent suicidal behaviour. Ethical approval for the original research study was granted by the Research Committee of the Faculty of Humanities of the University of the Free State. Participants were included in the study only once permission had been obtained from the Department of Education and the relevant school principals, together with the consent of the research participants.

A sample of 1 200 Grade 11 and 12 learners from 18 schools in the urban, semi-rural and rural parts of the Free State, South Africa, was selected. A stratified random sampling technique was applied for the selection of schools to ensure the appropriate representation of gender, age and racial groups in the sample.

#### ***1.4.3. Measuring instruments***

The following two measuring instruments were administered:

A researcher-compiled biographical questionnaire was used to gather information regarding demographic details such as race, gender, age and previous suicide attempt.

The Life Stressors and Social Resources Inventory, Youth Form (LISRES-Y) (Moos & Moos, 1994) was applied to measure a range of stressors and resources for adolescents regarding physical health, home and money, parents, siblings, extended family, school, friends and boyfriend/girlfriend. The internal consistencies ranged from .65 to .93 for the stressor subscales (Moos & Moos,

1994) and .78 to .93 for the social resources subscales (Huebner, Ash, & Laughlin, 2001; Moos & Moos, 1994).

#### **1.4.4. Data analysis**

Descriptive statistics were calculated for all subscales of stressors and resources. Data was subjected to logistic regression analysis in order to determine which demographic variables, stressors and resources play a significant role in predicting the group membership of adolescents regarding suicide attempt and non-attempt (Howell, 2010).

### **1.5. Definition of key terms**

#### **1.5.1. Suicidal behaviour**

Definitions of suicidal behaviour developed by O'Carroll et al. (1998) and adopted by the Institute of Medicine in 2002 (Goldsmith, Pellmar, Kleinman, & Bunney, 2002) are as follows: "*Suicidal ideation* refers to thoughts of harming or killing oneself. *Attempted suicide* is a non-fatal self-inflicted destructive act with explicit or inferred intent to die. *Suicide* is a fatal self-inflicted destructive act with explicit or inferred intent to die" (cited in Bridge et al., 2006, p. 372).

#### **1.5.2. Stress**

Hobfoll (1998) describes stress according to his Conservation of Resources theory:

Stress is predicted to occur as a result of circumstances that represent (1) a threat of resource loss, or (2), actual loss of the resources required to sustain the individual-nested-in, family-nested-in social organization. In

addition, because people will invest what they value to gain further, stress is predicted to occur (3) when individuals do not receive reasonable gain for themselves or social group following resource investment, this itself being an instance of loss. (pp. 45-46)

For the purpose of this study, the circumstances causing the stress through the actual or threatened loss of resources have been referred to as stressors.

### **1.5.3. Resources**

According to Hobfoll (1998, p. 45), “Resources include the objects, conditions, personal characteristics, and energies that are either themselves valued for survival, directly or indirectly, or that serve as a means of achieving these resources.”

### **1.5.4. Adolescence**

Adolescence is considered to span the ages of approximately 12 to 20 or “when the individual becomes relatively independent of parents and begins to assume an adult role” (Sigelman & Rider, 2009, p. 4).

## **1.6. Delineation of the dissertation**

This study consists of this introductory chapter as well as the five main chapters. The six chapters include the following:

Chapter 1: Orientation and problem statement. An overview of the study has been provided.



Chapter 2: Suicidal behaviour. The conceptualisation and prevalence of suicidal behaviour, as well as theories explaining suicidal behaviour, have been reviewed.

Chapter 3: Factors associated with suicidal behaviour. Factors associated with suicidal behaviour, particularly during adolescence, have been reviewed.

Chapter 4: Methodology. The methodological details of the study have been presented.

Chapter 5: Results. The findings of the study have been presented and discussed.

Chapter 6: Discussion of results and conclusion. The conclusions, limitations of the study and recommendations for application and further research have been discussed.

### **1.7. Researcher's comment**

The researcher intends to publish the results from this study in accredited journals such as the South African Journal of Psychology. The referencing system of the sixth edition of the American Psychological Association (APA, 2010) has been used throughout this study.

# CHAPTER 2

## 2. Suicidal Behaviour

### 2.1. Introduction

As is the case in many other parts of the world, suicide is disturbingly prevalent in South Africa. In this chapter, existing literature on suicidal behaviour is reviewed, including discussion on the prevalence of suicide both in South Africa and in the rest of the world, followed by historical perspectives on suicide. Theoretical approaches to understanding suicidal behaviour are discussed, including sociological, psychological and biological approaches.

There are various integrated models for understanding suicidal behaviour in society. These models bring the different theoretical approaches together, recognising the complex dynamics influencing human behaviour. The threshold model for suicidal behaviour has been described briefly, while the Integrated Stress and Coping Model (Moos & Schaefer, 1993) used for this study has been discussed in the following chapter as a framework for reviewing the factors associated with suicidal behaviour.

### 2.2. The conceptualisation of suicidal behaviour

#### 2.2.1. *Suicidal behaviour*

Suicidal behaviour can be seen as a continuum of behaviours, ranging from a person wishing him/herself dead to physically killing him/herself (Bridge et al., 2006; Schlebusch, 2005). Reddy et al. (2010, p. 55) define suicidal behaviour as “ranging from merely thinking about ending one’s life, through developing a plan to

commit suicide and obtaining the means to do so, and attempting to kill oneself, to finally carrying out the act successfully.”

Definitions of suicidal behaviour developed by O’Carroll et al. (1998) and adopted by the Institute of Medicine in 2002 (Goldsmith et al., 2002) are as follows: “*Suicidal ideation* refers to thoughts of harming or killing oneself. *Attempted suicide* is a non-fatal self-inflicted destructive act with explicit or inferred intent to die. *Suicide* is a fatal self-inflicted destructive act with explicit or inferred intent to die” (cited in Bridge et al., 2006, p. 372).

Schlebusch (2005) adds that, in addition to thoughts of killing oneself, suicidal ideation may include wishing oneself dead, and writing, talking about or planning the suicide.

### **2.2.2. Parasuicide and intent**

Some researchers include intent in their definition of suicidal behaviour. The NIMSS defines suicide as referring to “fatal self-inflicted *intentional* injuries” (Donson, 2008, p. ix), but it is understood that the use of the term “intent” in this context is to distinguish it from accidental self-injury. However, it seems that intentional self-injury may occur with or without the intent to die. Pillay and Wassenaar (1997) state that, for the purposes of their study, suicidal behaviours include all types of self-harm behaviours, regardless of intent to die.

The term “parasuicide” has been used to refer to intentional non-fatal self-injury without intention to die and is considered to be a cry for help (Jary & Jary, 2000; Schlebusch, 2005). However, it is not always possible to differentiate between suicide attempt with intention to die and parasuicide without intention to die (Scott

& Marshall, 2005). Some authors use the term “parasuicide” as a synonym for suicide attempt (Scott & Marshall, 2005). In this study, the term “suicide attempt”, rather than “parasuicide”, has been used as defined by Goldsmith et al., (2002, p. 27): “a non-fatal self-inflicted destructive act with explicit or inferred intent to die”.

### ***2.2.3. Prevalence of suicidal behaviour***

The global prevalence of suicidal behaviour will be discussed in the following section, followed by a discussion on the prevalence of suicidal behaviour in Canada, the USA, South Africa and other countries.

### ***2.2.4. Global prevalence of suicidal behaviour***

Approximately one million people die annually worldwide as a result of suicide (WHO, 2010), with suicide accounting for nearly half of violence-related deaths (Barlow & Durand, 2009; Krug et al., 2002). This represents a global mortality rate of 16 per 100 000 and one death every 40 seconds (WHO, 2010). Suicide is the tenth leading cause of death globally (WHO, 2009a), one of the three main causes of death among those aged 15 to 34 years (Kutcher & Szumilas, 2008) and the second leading cause of death for those aged 10 to 24 years (WHO, 2010). Attempted suicides occur up to twenty times more frequently than completed suicides (WHO, 2010).

Suicide rates have increased by 60% worldwide in the past 45 years (WHO, 2010). Traditionally, elderly males have been the group with the highest risk of suicide, but rates among the youth have increased to such an extent that they are currently the group most at risk in a third of the world’s countries, including both developed and developing countries (WHO, 2010).

#### 2.2.4.1. *Canada and the USA*

In Canada, the suicide rate is 15.0 per 100 000 population, which is higher than the USA with 13.9 per 100 000 population and the United Kingdom (UK) with 9.2 per 100 000 population (Krug et al., 2002).

In the USA during 2007, suicide was the eleventh leading cause of death and accounted for 1.4% of the total number of deaths, while homicide was the fifteenth leading cause of death and accounted for 0.8% of all deaths (Xu, Kochanek, Murphy, & Tejada-Vera, 2010). According to the Centers for Disease Control and Prevention (CDC, 2010), suicide is the third leading cause of death among young people in the USA after accidents and homicide (Berman, Jobes, & Silverman, 2006; Miller & Eckert, 2009). While the overall suicide rates among those aged 10 to 19 years declined from 2003 to 2004, suicide rates for females aged 10 to 19 years and males aged 15 to 19 years increased significantly from 2003 to 2004 (Miller & Eckert, 2009). The number of children aged 10 to 14 committing suicide has increased by 51% between 1981 and 2004. Despite the fluctuating rates, the overall rate of suicide for children and adolescents in the USA has increased by 300% since the 1950's (Miller & Eckert, 2009). While Canadian youth suicide rates have decreased in the past decade, the youth suicide rates are higher than those in the USA and the UK, and lower than the rate in New Zealand (Kutcher & Szumilas, 2008; WHO, 2010).

#### 2.2.4.2. *Other countries*

Some European countries have high suicide rates, with rates per 100 000 of the population at 20.0 in France, 22.5 in Switzerland and 16.8 in Ireland, while the UK has a lower rate of 9.2 per 100 000 population (Krug et al., 2002). Australia and New Zealand have suicide rates of 17.9 and 19.8 per 100 000 population respectively (Krug et al., 2002). With regard to attempted suicide, nationwide school surveys have shown that, among Greek adolescents aged 14 to 18 years, self-reported suicide attempts have doubled from 7.0% in 1984 to 13.4% in 2007 (Kokkevi et al., 2011).

In general, Eastern European and Asian countries have some of the highest suicide rates, with rates per 100 000 population as high as 43.1 in Russia, 36.1 in Hungary and 33.8 in the Ukraine (Krug et al., 2002). Rates per 100 000 population are at 19.5 in Japan and 18.3 in China (Krug et al., 2002). Discussion on the possible reasons for such high suicide rates in these countries is beyond the scope of this study. Unfortunately, the only African country which provided the WHO with suicide rates was Egypt, the last of which were provided from 1987, showing 0.1 men per 100 000 population (WHO, 2010). Earlier studies reported suicide rates of less than one per 100 000 population per year for most African countries, but later studies have shown more variation (Schlebusch, 2005). It was previously believed that suicidal behaviour was less frequent among black Africans for cultural reasons and, consequently, little research on suicidal behaviour within these communities was conducted (Schlebusch, Vawda, & Bosch, 2003; Schlebusch, 2005).

#### 2.2.4.3. *Prevalence of suicidal behaviour in South Africa*

The majority of data regarding suicide in South Africa comes from ad hoc studies since national, systematic mortality data for the suicide rates of the whole population has not been collected (Meel, 2003). From 1992, the quality of data for the cause of death has deteriorated as data was no longer based on inquest findings (Flisher et al., 2004). The National Injury Mortality Surveillance System (NIMSS) confirms that, since 1991, and Act No. 52 of 1992, external cause of death by injury has not been entered into the death registry and is therefore not included in national vital statistics on cause of death (Donson, 2008). Consequently, deaths due to suicide are not being nationally tracked, but the NIMSS aims to close this gap as their system is expanded to include more mortuaries (Donson, 2008).

The NIMSS, which uses data from a limited number of mortuaries, presents the number of deaths by suicide as a percentage of the total number of unnatural deaths and not of the general population, except for four cities where all the mortuaries participated (Donson, 2008). In South Africa, the ninth annual report of the NIMSS indicates that, for 2007, suicide was the third leading cause of non-natural deaths (10%) in the general population (Donson, 2008). In the four cities with full NIMSS coverage, suicide rates could be calculated per 100 000 of the population and were as follows: Pretoria 17.4; Johannesburg 14.2; Durban 11.9 and Cape Town 11.5 (Donson, 2008). Stark et al. (2010) found that the rate of completed suicide in the Bloemfontein and southern Free State areas was 10.9 per 100 000 population per year for the period 2003-2007.

Flisher et al. (2004) found a significant increase in youth suicide in South Africa, particularly among white people, from 1968 to 1990. Schlebusch (2005), as well as Meehan et al. (2007), note increased suicidal behaviour among youths in South Africa. In the Transkei region, Meel (2003) found that 65% of suicidal deaths were recorded among teenagers and young adults.

Studies indicate that, among the youth, prevalence of suicidal ideation ranges from 13% to 37% and that the prevalence of suicide attempt ranges from 8% to 29% (Matshego & Madu, 2009). According to Madu and Matla (2003), 21% of the adolescents surveyed in the Limpopo Province had attempted suicide.

The second South African National Youth Risk Behaviour Survey 2008 has provided current, nationally representative data on risk behaviours among Grade 8, 9, 10 and 11 learners in public schools in South Africa (Reddy et al., 2010). The survey explored the prevalence of specific suicidal behaviours experienced by learners during the six-month period prior to the survey. These findings can be compared with the first South African National Youth Risk Behaviour Survey 2002 in Table 1 (p. 19), showing an increase in attempted suicide from 17% in 2002 to 21.4% in 2008 (Reddy et al., 2003; Reddy et al., 2010).



**Table 1: Comparison of adolescent suicidal behaviour in 2002 and 2008**

<b>During the six-month period prior to the survey</b>	<b>2002*</b>	<b>2008**</b>
Felt sad or hopeless to such an extent that they had stopped some regular activities for two or more consecutive weeks	24.6%	23.6%
Considered suicide	19.0%	20.7%
Planned suicide	15.8%	16.8%
Attempted suicide	17.0%	21.4%

\* (Reddy et al., 2003, p. 39)

\*\* (Reddy et al., 2010, p. 56)

The findings from the most recent study of Reddy et al. (2010) suggest that many learners suffer from psychological problems. Of the learners, 23.6% had felt sad or hopeless to such an extent that they had stopped some of their regular activities for two or more consecutive weeks. One in five had considered suicide (20.7%), 16.8% of learners had planned suicide and 21.4% had attempted suicide at least once during the six-month period prior to the survey (Reddy et al., 2010). Older learners reported a higher prevalence of all the suicidal behaviours surveyed, including feelings of sadness and hopelessness. For the Free State Province, Reddy et al. (2010) reported that 20.4% (n = 1 244) of adolescents had attempted suicide during the six months prior to the survey.

### **2.3. Historical perspectives on suicide**

While there can be no doubt that youth suicide is a problem that needs to be addressed, history tells us that suicide is not a new phenomenon in society. Views on the acceptability of suicide have varied throughout the ages and have been strongly influenced by culture and religious beliefs.

Suicide has occurred at least as far back as history has been recorded (Holmes & Holmes, 2005; Rosen, 1975). The term “suicide” originates from the Latin *sui*, which means “of oneself” and *cide* from *caedere*, which means to cut, chop or kill, or, literally, to “kill oneself” (Holmes & Holmes, 2005, p. 15).

Throughout history, the reasons, methods and acceptability of suicide have varied greatly between cultures, social classes and contexts. In ancient Greece, suicide was condemned as it was seen as an act of rebellion against the gods whom humans were meant to serve (Holmes & Holmes, 2005). In some circumstances, however, such as when suffering from a terminal illness or from extreme pain, or when one died defending his country, suicide was sometimes considered to be acceptable (Holmes & Holmes, 2005).

In ancient Roman society, those in the military chose to commit suicide rather than to suffer the shame of being killed by the enemy, or when defeat seemed inevitable (Holmes & Holmes, 2005; Rosen, 1975). Suicide was thus viewed as the freedom to choose one’s fate or to escape unbearable pain. Although it was not necessarily encouraged by Roman society, suicide was not viewed as an insult to their gods as was the case in ancient Greek society (Holmes & Holmes, 2005).

With the rise of Christianity, attitudes towards suicide changed. Christians willingly died at the hands of the Romans, or by means of suicide, because of their belief in the afterlife. Only much later, in the fourth century, was suicide banned by the church as turning away from God and was therefore considered to be a sin. Augustine viewed suicide as a rejection of the gift of life and therefore of God and

as a violation of the Biblical commandment not to kill (Blumenthal, 1990; Holmes & Holmes, 2005). Suffering was meant to be endured and the decision of when a person should die was to be left in God's control. In the centuries that followed, the church held synods to decide on the status and penalties of suicide, such as not being eligible for last rites or burial in consecrated ground (Holmes & Holmes, 2005).

Durkheim's (1951) extensive sociological study on suicide helped to bring the study of suicide to the forefront, highlighting the fact that suicide is a complex and multi-factorial phenomenon. A comprehensive understanding of suicide entails recognising the possible influences at all the levels of an individual's life. Theories of suicide will be discussed in the following section.

## **2.4. Theories of suicide**

The contemporary study of suicide arose approximately one century ago from two main streams of thought: sociological, pursued by Durkheim and psychological, influenced by Freud (Blumenthal, 1990). These theoretical approaches will now be discussed in more detail, followed by a brief reference to biological aspects.

### **2.4.1. Sociological theory**

#### *2.4.1.1. Durkheim*

In his book, *Le Suicide: Étude le Sociologie*, first published in 1897, Durkheim described the causes and types of suicide based on social structure and function (Durkheim, 1952). While acknowledging the influence of individual factors such as psychopathology on suicide Durkheim describes three types of suicide based on

sociological factors, namely egoistic, altruistic and anomic. A fourth type, fatalistic suicide, is given very little attention in his analysis (Holmes & Holmes, 2005). In his analysis, which makes use of statistical records of suicide cases in European countries, Durkheim concluded that the different types of suicide largely depend on the levels of integration and regulation of the individual in society (Durkheim, 1952).

Egoistic suicide results from inadequate integration into society or family life (Durkheim, 1952) and low regulation. This inadequate integration was found to occur more frequently among Protestants, with their individualistic approach, than among Catholics, whose collective life encouraged integration (Durkheim, 1952; Holmes & Holmes, 2005). Using this approach, one could expect an increase in egoistic suicide among black South Africans as cultural changes shift from a predominantly collectivist African worldview to an individualistic Western worldview, with the resultant lower integration into society. Schlebusch et al. (2003) suggest that changes in role expectations with the shift from traditional cultural identification to Western lifestyles could be a factor in the high levels of suicidal behaviour displayed by South African women.

Anomic suicide occurs when the regulation of an individual by society is markedly disrupted after the person had the satisfaction of his needs regulated by society and had incorporated shared beliefs and practices as part of the collective conscience. During the disruption, the person's horizon is expanded or contracted beyond endurance, creating conditions for anomic suicide. Divorce was seen to be a cause of conjugal anomie, which explained the higher rates of suicide found among divorced people (Durkheim, 1952; Holmes & Holmes, 2005). According to

this theory, anomic suicide could also be expected to have increased in South Africa following a measure of deregulation in society as apartheid was dismantled (Huschka & Mau, 2006). Schlebusch et al. (2003) recognise that South Africa's history of traumatised citizens, together with acculturation, socio-economic factors and high crime rates in a society in transition, all contribute to high stress levels and increased suicide risk among South Africans.

Altruistic suicide is seen to arise when both integration and regulation are very high. The person's life is governed by customs and the suicide occurs because of a higher command, such as for a religious or political purpose or in the military (Durkheim, 1952; Holmes & Holmes, 2005).

Fatalistic suicide is seen to arise from a perceived loss of control of one's life through over-regulation by society and from which the person can see no escape. Examples include women in abusive marriages, the terminally ill (Holmes & Holmes, 2005) or mass suicides (Blumenthal, 1990).

While sociological theories have made a valuable contribution to the understanding of suicide, sociological theory has its limitations. Henry and Short (1954) asserted that Durkheim has overlooked important psychosocial factors, such as frustration and aggression, as well as internal restraint and homicide, in his analysis of suicide (Henry & Short, 1954; Maris, Berman, Silverman, & Bongar, 2000). Individual factors, as well as the complex interactions between individual and social factors, play an important role in suicidal behaviour. Clearly, psychological factors also need to be considered when investigating the dynamics of suicidal behaviour.

### **2.4.2. Psychological theory**

Psychological theory focuses on individual factors which may influence behaviour. While there are many different psychological theories that contribute to the understanding of suicidal behaviour, only the psychoanalytical and behavioural approaches are discussed in this section as these were the more prominent theories found in the literature reviewed.

#### **2.4.2.1. Psychoanalytical theory**

In contrast to Durkheim's sociological approach, Freud brought attention to the inner, unconscious drives and motives influencing a person to commit suicide and highlighted the significance of relationships, arguing that "the self-destructive feelings of the melancholic are disguised attacks against a lost love-object, so that suicide is murder by proxy" (Freud, 2005, p. xi).

In his book, *Mourning and Melancholia*, published in 1917, Freud (2005) focused on the intrapsychic reasons for suicide, such as unconscious hostility focused inwardly towards the self, instead of outwardly towards the object of anger (Barlow & Durand, 2009; Blumenthal, 1990; Holmes & Holmes, 2005). Menninger (1938) expanded on the idea of suicide as murder by the self and identified three internal elements of this kind of death: the elements of dying, of killing and of being killed. For these elements, he further identified conscious and unconscious motives, particularly the wish to kill, the wish to be killed and the wish to die (Blumenthal, 1990; Holmes & Holmes, 2005; Menninger, 1938).

Freud's basic assumption (Lester, 1988) was that all behaviour is motivated. He described the three major subsets of wishes as:

- the id wishes, which are simple, disorganised and often aggressive wishes possessed from early on in life;
- superego wishes, which are those taken from other people, mainly parents, and includes the conscience and the ideal self; and
- the ego wishes, which are complex, organised and mature wishes, often resulting in a compromise between a number of wishes.

Freud identified that a person becomes anxious when a wish is deprived and when an unconscious wish is likely to become conscious (Lester, 1988). Freud also believed that the deprivation of desires in one's early life has a marked impact later in life and that the earlier and more severe the deprivation, the more severe the later psychological disturbance (Lester, 1988).

Freud's more systematic views show that, when a person loses a loved object, energy withdrawn from the lost loved object is relocated in the ego to become a "permanent feature of the self, an identification of the ego with the lost object" (Lester, 1988, p. 9). In more modern terms, some of the desires of the loved one become introjected so that "the lost loved one remains symbolically a part of our own mind" (Lester, 1988, p. 10). When the person also has hostile wishes towards the lost loved one, he/she can turn this anger towards the part of his/her mind that symbolises the lost object and this can lead to suicidal behaviour (Berman et al., 2006; Lester, 1988).

Van Orden et al. (2006, p. 575) have proposed, in their interpersonal theory of suicide, that the “most dangerous form of suicidal desire is caused by the simultaneous presence of two interpersonal constructs — thwarted belongingness and perceived burdensomeness (and hopelessness about these states)”, highlighting the importance of relationships as an influencing factor in suicidal behaviour.

Also from a psychoanalytical approach, Henry and Short (1954) proposed that the primary response to frustration is to aggress towards the frustrating person rather than the self. They asked what would cause one child to consider aggression towards others as legitimate and why another child would inhibit this primary response to consider self-directed aggression as more legitimate. They argue that, in childhood, love-oriented punishment and punishment from the nurturing parent would lead to the inhibition of the other-oriented aggression (felt towards the punishing parent) so as not to threaten the supply of love and nurture (Henry & Short, 1954; Lester, 1988).

From this reasoning, suicide, as a chosen course of action – instead of showing aggression towards others or committing homicide – could be regarded as reflecting a stricter super-ego formation (internalised parental expectations) or greater internal restraint (Henry & Short, 1954). Both homicide and suicide are considered to be aggressive acts in response to frustration (Henry & Short, 1954).

The adverse consequences of homicide in a society are also a possible influence on the choice of suicide over homicide. It is interesting to note that in the Americas and African countries, homicide rates are almost three times higher than



suicide rates, while in European and South-East Asian countries, suicide rates are more than double the homicide rates and, in the Western pacific region, suicide rates are almost six times the homicide rates (Krug et al., 2002; Sommer, 2005). These regional differences do suggest a cultural or psychosocial dynamic regarding the acceptability of suicide over homicide as an aggressive response to frustration.

Psychoanalytical theory has made valuable contributions to the understanding of suicidal behaviour (Berman et al., 2006), for example, by explaining the associations between suicidal behaviour and early loss in childhood, between suicide and depression (Lester, 1988), and suicide and aggression (Henry & Short, 1954).

#### 2.4.2.2. *Behavioural theory*

Other psychological theories may shed some light on yet another factor at work in the dynamic of suicidality. Behavioural theorists assert that suicidal behaviour is learned. Exposure to suicide has been identified as a risk factor for suicide (Blumenthal, 1990; CDC, 2010), especially if a family member has committed suicide. Furthermore, media coverage of suicide can lead to imitation suicide (Chen et al., 2010). Suicidal behaviour may be regarded as a means of escape from stress (Berman et al., 2006) and an avoidant problem-solving style (Moos & Holahan, 2003). Operant conditioning may, to some extent, explain suicidal behaviour. Examples of positive reinforcers include the increased attention, concern and love received from others and even the prospect of making others

suffer. Negative reinforcers include relief from tension and being removed from a stressful situation to a hospital (Lester, 1988).

While psychoanalytical and behavioural theories explain important psychological aspects of suicidal behaviour, independently, they do not adequately recognise the importance of biological factors. Interacting with social and psychological factors, biological factors have also been associated with suicidal behaviour.

### **2.4.3. Biological theory**

A family history of suicide has been significantly associated with suicide (Christiansen, Goldney, Beautrais, & Agerbo, 2011; Mittendorfer-Rutz, Rasmussen, & Wasserman, 2008) and this can be explained by: identification with and imitation of the relative who committed suicide; family stress; genetic factors for suicide; and genetic factors for psychiatric disorders, including depression (Blumenthal, 1990). The influence of genetic factors in suicide has been supported by twin and adoption studies (Barlow & Durand, 2009; Blumenthal, 1990; Von Borczyskowski, Lindblad, Vinnerljung, Reintjes, & Hjern, 2011).

It is understood from the diathesis-stress model that a genetic predisposition increases vulnerability to certain disorders which may only emerge under certain environmental conditions (Barlow & Durand, 2009). However, these interactions are even more complex, as explained by the reciprocal gene-environment model, which recognises that genetic factors may also increase the probability that an individual will experience environmental risk factors. For example, impulsivity may be a genetically determined trait that increases the likelihood of accidents which, in turn, could increase the acute and chronic stress experienced (Barlow &

Durand, 2009). Braquehais, Oquendo, Baca-García and Sher (2010) note that impulsivity is also a consequence of trauma and could be one of the links between childhood trauma and suicidal behaviour.

The two main physiological consequences of stress are changes in the functioning of the serotonergic system and of the hypothalamic-pituitary-adrenal (HPA) axis (Braquehais et al., 2010). The physiological effects of stress can increase the risk of the psychological disorders and traits associated with the increased risk of suicidal behaviour. Studies have found a biological association between reduced serotonergic activity and mood disorders, aggression and impulsivity (Barlow & Durand, 2009; Blumenthal, 1990; Von Borczyskowski et al., 2011), factors associated with the increased risk for suicidal behaviour (Blumenthal, 1990; Kerr & Capaldi 2011; Matthews et al., 2007; Pickles et al., 2010). Similarly, elevated cortisol levels, a measure of altered functioning of the HPA axis, have been associated with an above-average risk for psychotic disorders (Collip et al., 2011) and susceptibility to affective disorders (Ostiguy, Ellenbogen, Walker, Walker, & Hodgins, 2011).

While the sociological, psychological and biological approaches have each made valuable contributions to the understanding of suicidal behaviour, independently, they have not adequately recognised the complex interactions between the individual and the environment. Consequently, the need arose for a model which would integrate the different theoretical approaches and recognise the interactions between the sociological, psychological and biological domains.

## **2.5. Theoretical models for understanding suicide**

Integrated models, incorporating various theoretical perspectives rather than only one, have emerged in recent decades (Barlow & Durand, 2009). These models integrate the different theories to provide a more comprehensive understanding of the phenomenon under investigation. Integrated models recognise the fact that no influence occurs in isolation, whether biological, behavioural, cognitive, emotional, or social and that human behaviour involves complex interactions with these influences (Barlow & Durand, 2009). Each domain of a person's existence has a variable impact on the other domains. While the domains may be separated for the purposes of study, in reality, the interactions and interdependence between the domains remain complex and unique for each person. In the following section, the threshold model for understanding suicidal behaviour will be described briefly. The Integrated Stress and Coping Model used in this study will be discussed in detail in the following chapter.

### ***2.5.1. Threshold model***

Blumenthal and Kupfer (1988) and Blumenthal (1990) described the threshold model in terms of five domains of risk factors for understanding suicidal behaviour. The domains include genetic factors and family history, biological factors, psychiatric diagnosis, personality traits, and psychosocial and environmental factors (Blumenthal, 1990). This model is referred to as the threshold model because a person with a biological vulnerability to suicide may develop additional risk factors later in life, such as depression or exposure to suicide which, when combined with precipitating factors such as a humiliating life experience and an available method for suicide, may lower the person's threshold for suicidal

behaviour. Furthermore, the presence of certain protective factors, such as cognitive flexibility, hopefulness, social support and effective treatment of a psychiatric or personality disorder, could raise the threshold for suicidal behaviour (Barlow & Durand, 2009; Blumenthal, 1990).

The threshold model enhances understanding of the process leading up to suicidal behaviour and identifies risk and protective factors specific to suicide as described above. However, the threshold model does not accommodate broader factors such as gender, race, life transitions, developmental aspects or coping strategies as aptly as the more general Integrated Stress and Coping Model of Moos and Schaefer (1993). The Integrated Stress and Coping Model will be discussed in detail in the following chapter.

## **2.6. Conclusion**

In this chapter, broad aspects of suicidal behaviour, including conceptualisation, prevalence, historical perspectives, theoretical approaches and models of suicidal behaviour, have been discussed. Sociological, psychological and biological theories have, to some extent, explained suicidal behaviour, but an integrated approach is needed in order to recognise the complex interactions between the different domains. The threshold model provides valuable information regarding risk and protective factors specific to suicide, such as exposure to suicide and availability of method for suicide. However, the Integrated Stress and Coping Model more aptly accommodates the broader aspects influencing suicidal behaviour such as gender and race, life transitions, developmental aspects and coping strategies. In the following chapter, the literature relevant to suicidal

behaviour will be discussed in detail under each of the five panels of the Integrated Stress and Coping Model.

## **CHAPTER 3**

### **3. Factors Associated with Suicidal Behaviour**

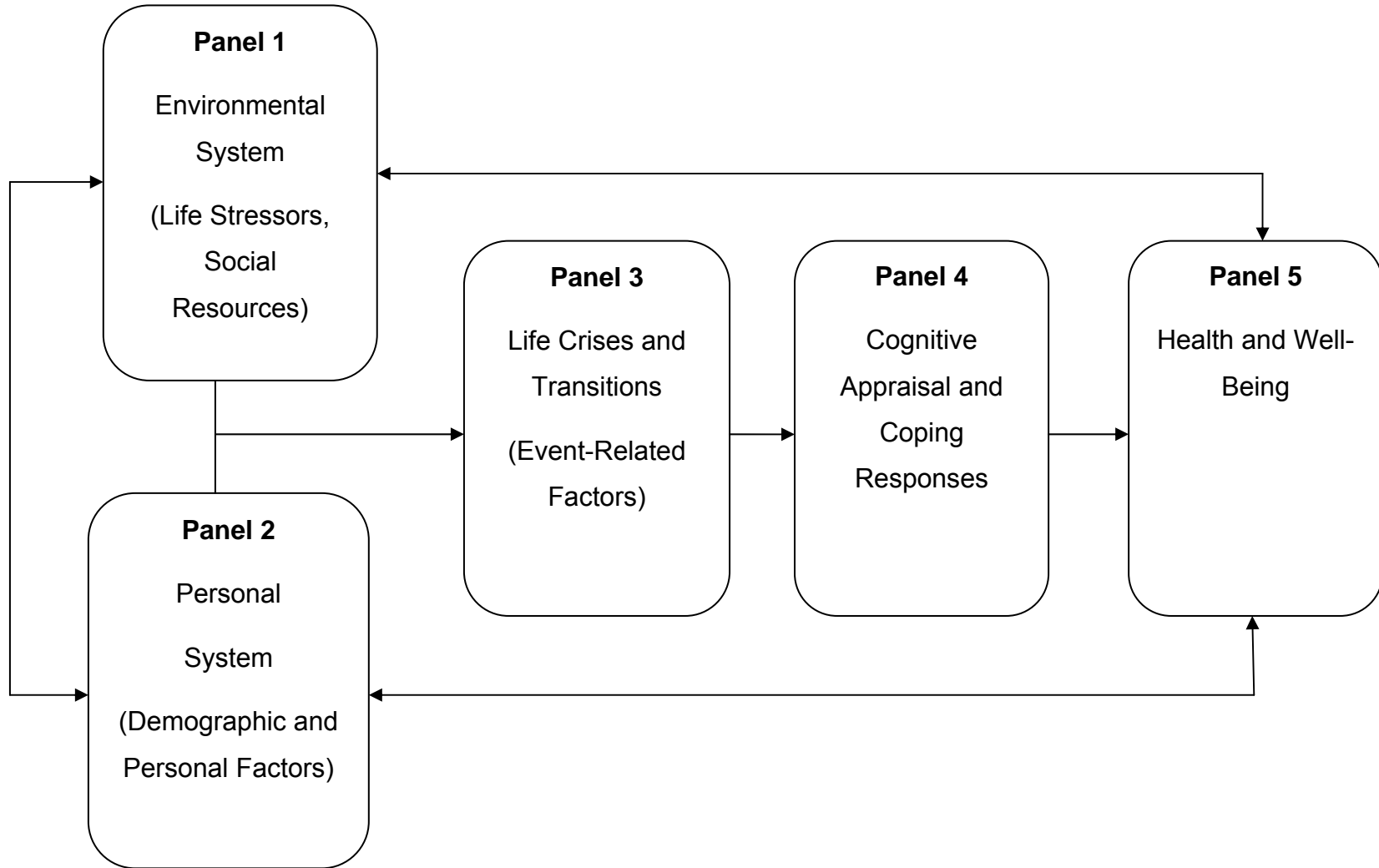
#### **3.1. Introduction**

Several factors associated with suicidal behaviour have been identified in the literature. These include problems at school, family distress (Walsh & Eggert, 2008), parent-child conflicts (Bridge et al., 2006; Kölves, 2010; Pillay & Wassenaar, 1997) and frequent and high stress factors such as physical and sexual abuse (Bridge et al., 2006; Dinwiddie et al., 2000; Walsh & Eggert, 2008). Personal factors such as psychological disorders (Moosa, Jeena, Pillay, Vorster, & Liebenberg, 2005), personality traits such as impulsivity (Phillips, 2010), and maladaptive coping strategies (Horwitz, Hill, & King, 2011) have also been associated with suicidal behaviour.

In this chapter, the factors associated with suicidal behaviour are discussed in detail under each of the five broad panels of the Integrated Stress and Coping Model of Moos and Schaefer (1993), with additional focus on adolescence and suicide attempt.

#### **3.2. The Integrated Stress and Coping Model**

Moos and Schaefer (1993) described the Integrated Stress and Coping Model (shown in Figure 1, p. 34) as a process in which the interactions of environmental (panel 1) and individual (panel 2) stressors and resources, together with life transitions and life crises (panel 3), shape coping responses (panel 4) which, in turn, impact the health and well-being of the individual (panel 5).



**Figure 1: The stress and coping process**

Moos & Schaefer (1993, p. 237).



### **3.2.1. Panel 1: Environmental factors**

Panel 1, as depicted in Figure 1 (p. 34) refers to relatively stable external or environmental life stressors and social resources that impact the stress and coping process. It includes life domains such as physical health, finances and relationships (Moos & Holahan, 2003; Moos & Moos, 1994). According to the stress and coping theory, life stressors and social resources are regarded “as two key sets of contextual and socialization factors associated with adolescent functioning” (Moos & Moos, 1994, p. 1). It has been suggested that, while negative life events are associated with emotional, behavioural and physical problems among youth, ongoing stressful conditions are better predictors of psychological outcomes than acute life events (Daniels & Moos, 1990; Moos & Moos, 1994) and influence cognitive appraisal as well as the choice of coping strategies employed (Moos & Moos, 1994). The main focus of the current study was on contextual stressors and resources.

In this rapidly changing world, the stressors and resources encountered by the youth are also changing. In this section, the contextual stressors and resources pertinent to the daily lives of adolescents are discussed. It must be borne in mind that each factor can be a stressor and/or a resource in the life of an adolescent. The relatively stable contextual factors considered in this section include relationships with close and extended family and friends, the school environment, domestic conditions, physical health, exposure to suicide and availability of method.

### 3.2.1.1. *Family*

Parents are an important source of social support for adolescents. Secure attachment to parents has been associated with high levels of self-esteem and self-efficacy (Sharaf et al., 2009). Authoritative parenting and high self-control have been found to reduce the harmful effects of bullying, victimisation or self-harm and suicidal ideation of adolescents (Hay & Meldrum, 2010). Conversely, lower parental involvement has been associated with suicide attempt (Sharaf et al., 2009) although the over-involvement of parents could also be detrimental to the parent-child relationship (Miller & Eckert, 2009) and parent-child conflicts are an important risk factor for suicide in young adults (Bridge et al., 2006; Kölves, 2010).

In their study on Indian adolescents in South Africa, Pillay and Wassenaar (1997) found that of those who had engaged in suicidal behaviour, 77.5% experienced conflict with their parents during the hours before the event. Furthermore, suicidal subjects experienced significantly more family conflict, problems at school and problems with a boyfriend or girlfriend during the preceding six months than those in the control groups and also had significantly lower levels of family satisfaction (Pillay & Wassenaar, 1997). Maternal closeness has been significantly (negatively) associated with suicidal ideation in young females and with risk behaviour among young males in a study among youths in Cape Town (Gilreath, King, Graham, Flisher, & Lombard, 2009). George (2005) also found a significant correlation between parents as a stressor and suicidal ideation among youths in the Northern Cape Province. In the study on suicide victims in the Transkei, Meel (2003) found that 17% had experienced family disputes and 17% had been separated from a parent through divorce or separation.

Siblings can be an important resource, for example, when older siblings care for younger ones. However, this can be an added stressor for the older sibling who may need to sacrifice time spent on school work, extramural activities and friends in order to help run a household (Louw, Louw, et al., 2007). Bullying includes various forms of abuse and may also come from one or more siblings. Abuse and troubled family relationships have been associated with suicidality (Louw, Louw, et al., 2007; Roen, Scourfield, & Dermott, 2008).

Extended family refers to relatives other than parents or brothers and sisters (Moos & Moos, 1994). These relatives could be a resource and/or stressor, particularly if they live with the adolescent, provide financial or emotional support, or have frequent contact with the family or adolescent. Extended family may be an important resource for orphaned adolescents such as when a grandparent, aunt, uncle or cousin becomes the primary caregiver; thus, assuming the role of a parent. However, troubled relationships with close extended family members could be an important stressor and unreasonable demands may be placed on the adolescent by the relative, for example, having to care for children or an ill grandparent (Louw, Louw, et al., 2007).

#### 3.2.1.2. *Friends*

Friendships within the peer group become an increasingly important resource for the emotional support, information and socialisation of the adolescent. During adolescence, friendships are increasingly based on intimacy and self-disclosure (Louw, Louw, et al., 2007; Sigelman & Rider, 2009). Supportive friendships can be a valuable buffer in the midst of life crises and transitions, and can also serve as a protective factor from suicidal behaviour (Louw, Duncan, et al., 2007; Louw,

Louw, et al., 2007; Roen et al., 2008). Conversely, the loss of a friendship could be a risk factor for suicide attempt (Louw, Duncan, et al., 2007). Bullying and cyberbullying contribute to relationship problems experienced with peers and have been associated with suicidal behaviour (Hay & Meldrum, 2010; Klomek, Sourander, & Gould, 2010).

### 3.2.1.3. *Romantic relationships*

As with other friendships, romantic relationships play a role in the development of one's identity, as well as in the development of communication skills and social skills. For older adolescents, steady relationships can provide stability and can also serve as an important preparation for marriage since valuable qualities, such as openness, honesty and the ability to resolve conflict, can be developed (Louw, Louw, et al., 2007).

However, early steady relationships can reduce interaction with same-gender peers and restrict social development. Early steady relationships can also result in pressure to have a sexual relationship which can be a source of stress because of guilt or fear of an unplanned pregnancy (Louw, Louw, et al., 2007). Whereas the break-up of a romantic relationship can also be a risk factor for suicide attempt (Louw, Duncan, et al., 2007), adolescent aggression and previous attempted suicide have been found to predict negative romantic relationship outcomes, including intimate partner violence (Kerr & Capaldi, 2011).

In South Africa, Reddy et al. (2010) found that 15.1% of the youths surveyed had been assaulted by their boyfriend/girlfriend in the six months prior to the survey. Significantly more males than females admitted to ever having assaulted their partner, while significantly fewer Indian and white learners than black or coloured

youths reported that they had assaulted their partner. Reddy et al. (2010) found that 10% of learners reported that they had previously been forced to have sex and that significantly more males than females reported that they had been forced to have sex. South Africa also has relatively high rates of intimate-femicide, i.e. the killing of a woman by her intimate partner, and of intimate femicide-suicide, i.e. when the perpetrator of intimate-femicide commits suicide (Matthews et al., 2007). In 1999, 8.8 per 100 000 women aged 14 years and older were killed by their intimate partner. These rates seem to be related to high levels of interpersonal violence and gender inequality in South Africa (Matthews et al., 2007).

#### *3.2.1.4. School*

Relationships with teachers, coaches and other learners who provide support and empathy can be a resource (Moos & Moos, 1994). These relationships can also become stressors when interpersonal conflicts arise (Moos & Moos, 1994). An important stressor in the school context is bullying, which has been associated with psychiatric disorders (Klomek et al., 2010; Luukkonen, Räsänen, Hakkom, & Riala, 2010) and with suicidal behaviour (Hinduja & Patchin, 2010; Klomek et al., 2010; Luukkonen et al., 2010). Bullying involves various forms of abuse and seems to be prevalent in South African schools (Louw & Louw, 2007). Reddy et al. (2010) found that 36% of the youths surveyed had been bullied in the month prior to the survey. Cyberbullying has also been associated with suicidal behaviour (Hinduja & Patchin, 2010; Klomek et al., 2010) and is a cause for concern with the increase in interactive communication via the Internet and cellular phones.

Academic failure could contribute to stressful life events that precede suicide attempt (Louw, Duncan, et al., 2007; Walsh & Eggert, 2008). A longitudinal study has shown that first and second-grade classroom interventions to socialise children for the academic role and reduce aggressive, disruptive behaviour, may delay or prevent the onset of suicidal behaviour (Wilcox et al., 2008). In addition to the many other psychosocial stressors aggravated by poverty, poverty itself has been associated with lower academic achievement, which could be attributed partly to reduced access to preschool programmes and attending schools with fewer resources and lower academic standards (Louw, Duncan, et al., 2007).

#### 3.2.1.5. *Economic factors*

Adequate domestic conditions and money for necessities are resources that, if found to be lacking, result in stressful circumstances for the adolescent. Financial crisis and deprivation can impact the family system in many ways and increase the stress experienced by the adolescent and heighten the risk of attempting suicide (Bernburg et al., 2009; Dupéré et al., 2009; Kölves, 2010). Unemployment and financial deprivation may increase or exacerbate psychological disorders and substance abuse among parents, resulting in increased conflict, the breakdown of family relationships (Kölves, 2010) and diminished parental support. Increased mobility to find employment may result in the loss of friendships and social support, posing a further risk of egoistic and anomic suicide due to a lack of integration and regulation respectively (Durkheim, 1952; Kölves, 2010; Thorlindsson & Bernburg, 2009).

A lack of money for food and other essentials also places the adolescent at risk of maltreatment and sexual abuse, with food or money being offered for sexual

favours. Abuse increases the risk of both attempted and completed suicide (Bridge et al., 2006; Dinwiddie et al., 2000; Louw, Duncan, et al., 2007).

Although unemployment in South Africa has declined from 29% in 2000 to 24% in 2009, this figure is still considered to be high (Statistics SA, 2010) and contributes towards the stress experienced by adolescents in their daily lives. Furthermore, interracial inequality remains high in South Africa. To illustrate this point, in 2006, the black population, which constituted 79.4% of the population, earned 41.2 % of the total income in South Africa, while white people, who constituted 9.2% of the population, earned 45.3% of the total income (Statistics SA, 2010). Such interracial inequalities could contribute to differences in experience by the various races in terms of economic conditions as a stressor.

In the Free State, the 2001 census showed increased unemployment rates for all races. The unemployment rates were 27.8% for black people, 24.1% for coloured people, 5.5% for Indian people and 4.3% for white people in 2001 (Statistics SA, 2005). Access to formal housing, electricity, water, sanitation, refuse removal and a telephone or cellular telephone improved from 1996 to 2001, but the black and coloured populations were underserved compared with other races (Statistics SA, 2005).

Among South African youths in the Northern Cape Province, George (2005) found a positive, statistically significant correlation between the stressor Home and Money and suicidal ideation, while Basson (2008) found the stressors most frequently reported to be School, Physical Health and Home and Money, with black subjects citing Home and Money as a greater stressor than their white counterparts. Economic hardship was identified as the main reason for suicide in

87% of the cases investigated in the Transkei region of South Africa (Meel, 2003) and was listed as a reason by young adults, who participated in a qualitative study in a poor rural community in the Western Cape, for having attempted suicide (Holtman, Shelmerdine, London, & Flisher, 2011). Other contextual factors identified in this study included a dysfunctional childhood family, early alcohol use and dependence, as well as interpersonal violence and social problems generally exacerbated by poverty (Holtman et al., 2011).

#### 3.2.1.6. *Physical health*

Poor physical health and disability, including asthma (Katon, 2010; Kuo et al., 2010), have been associated with suicidal ideation or behaviour (Bridge et al., 2006). It could be argued that physical health should be considered to be an individual or personal factor rather than a contextual factor in the stress and coping process. However, in developing countries, health problems arising from a lack of access to adequate health care, nutrition and sanitation add to the burden of infections such as the human immune-deficiency virus, HIV (Louw, Duncan, et al., 2007).

With regard to general health issues in South Africa, the provision of immunisation has increased significantly from 2001 to 2009, while infant mortality rates have stabilised from 2001 to 2007. However, the mortality rate of children below the age of five has increased inordinately from 59 per 1 000 live births in 1998 to 104 in 2007 (Statistics SA, 2010). Furthermore, the life expectancy at birth has decreased from 57.6 for males and 64.8 for females in 2001 to 55.3 for males and 60.4 for females in 2007 (Statistics SA, 2010). The increase in child mortality and the decline in life expectancy can be largely attributed to HIV infection (Statistics



SA, 2010). Tuberculosis (TB) also remains a health challenge in South Africa with HIV/TB co-infection rates exceeding 70% (Statistics SA, 2010). These general indicators reflect the burden of disease that many South Africans are faced with and which affects the environment of the adolescent.

Sexual attitudes and behaviour fuelling the spread of HIV infection form part of the environment influencing the adolescent. Teenage pregnancy can also burden the adolescent psychologically, socially and physically (Louw, Louw, et al., 2007). In South Africa, the prevalence of HIV among pregnant women between the ages of 15 and 24 years has increased from 22.8% in 2002 to 29.3% in 2008, while the overall prevalence of HIV for persons aged 15 to 24 years has decreased from 9.3% in 2002 to 8.7% in 2008 (Statistics SA, 2010). For South Africa as a whole, access to anti-retroviral drugs by persons with HIV has increased from 13.9% in 2005 to 41.6% in 2009 (Statistics SA, 2010). However, it is estimated that, in South Africa, approximately 500 children are orphaned daily because of HIV and nearly one in six children lives with a mother who is HIV-infected (Louw, Duncan, et al., 2007).

The broader impact of HIV infection and other illnesses on child and adolescent development includes the loss of resources and distress caused by traumatic exposure to suffering and death, emotional deprivation, loss and changes in family composition, role changes with early adult responsibilities, stigmatisation, poorer education, economic decline due to the illness of a breadwinner and draining resources on health care (Louw, Duncan, et al., 2007). Meel (2003) found that health-related issues were precipitating factors in 17% of suicide cases in the Transkei region of South Africa.

Health and economic factors are closely related, with poor health draining meagre resources and negatively impacting the earning capacity of those affected. The resulting early losses and negative life events increase the number and intensity of suicide risk factors experienced by the youth in South Africa and they reduce the available protective factors such as parental support.

#### *3.2.1.7. Exposure to suicide*

Exposure to suicide has been cited as a risk factor for suicidal behaviour (Blumenthal, 1990; Bridge et al., 2006). Exposure to the suicide of a friend or relative or through the media appears to increase the vulnerability of some people to suicidal behaviour (Blumenthal, 1990; Bridge et al., 2006; Chen et al., 2010; Christiansen et al., 2011). However, in her study among adolescents in the Northern Cape Province Loots (2008) found that exposure to suicide did not have a significant association with suicidal ideation. It is believed that, for some adolescents, exposure to suicide could have an inhibitory effect on suicidal behaviour (Loots, 2008). This could be the result of interventions, such as discussions with and counselling of those affected by the suicide, as well as recognition of the devastation experienced by those left behind (James, 2008; Roen et al., 2008).

#### *3.2.1.8. Availability of method*

Availability of method for suicide is an environmental factor and is considered to be a precipitating risk factor for attempting suicide (Blumenthal, 1990). It has become an important focus of violence and suicide prevention (WHO, 2009b). Measures such as bans, licensing systems, having a minimum age for buyers,

background checks and safe storage requirements for firearms have been implemented in places such as Austria, Brazil and some states in the USA.

Evidence indicates that these measures are effective in reducing firearm suicide and violence (Beautrais, Fergusson, & Horwood, 2006; WHO, 2009b). Less evidence is available regarding similar measures for sharp objects. In the UK, the measures implemented include a ban on flick knives, a minimum age for buyers, “stop and search” initiatives and amnesties (WHO, 2009b). In Asia, where pesticides are commonly used as a method of suicide, bans on some pesticides and safer storage requirements have resulted in a reduction of suicides (WHO, 2009b).

In South Africa, Donson (2008) found that the methods of suicide most frequently used include hanging (58%), poisoning (17%) and firearms (15%). Also in this country, perpetrators of intimate-femicide who then committed suicide were more likely to have owned a gun than those who did not commit suicide and were more likely to have used a gun in the femicide (Matthews et al., 2007). While exposure to suicide and the availability of method have both been recognised as crucial contextual factors influencing suicidal behaviour, they have not been assessed in this study.

In conclusion, relationships with close and extended family members, friends and teachers serve as important resources for the adolescent, but when conflict or abuse occurs, the same relationships can become stressors. As discussed, other environmental stressors include economic conditions, physical health, exposure to suicide and availability of method for suicide.

Fortunately, most youths who experience these stressors or risk factors never attempt or complete suicide. In addition to social resources, such as good friendships, parental support and family satisfaction, some personal protective factors may come into play to help develop resilience and protect against suicidal behaviour. Personal factors will now be discussed in order to provide an overall understanding of the dynamics involved in suicidal behaviour as an outcome of the stress and coping process.

### **3.2.2. Panel 2: Personal factors**

Panel 2, depicted in Figure 1 (p. 34) refers to the individual's personal system and includes socio-demographic factors such as gender, race and age, as well as genetic and biological factors which may influence the stress and coping process. It also includes personal characteristics such as self-confidence, ego development, problem-solving abilities and previous coping experiences (Moos & Schaefer, 1993). The personal factors discussed in this section include gender, race, age, dispositional factors, psychological disorders and personality traits.

#### *3.2.2.1. Gender and suicidal behaviour*

In general, it has been found that, whereas more females attempt suicide, more males complete suicide (Barlow & Durand 2009; Bridge et al., 2006; Joe, Stein, Seedat, Herman, & Williams, 2008; WHO, 2010). Globally, apart from China (Bridge et al., 2006; WHO, 2010), the rates of completed suicide for adult and young females are lower than those for males (Krug et al., 2002). The reason for the higher incidence of completed suicide among males is that men are more likely to have risk factors such as alcohol abuse disorders, aggression and choice of more lethal methods for attempting suicide than females (Bridge et al., 2006).

However, more females attempt suicide than males and this could be attributed to higher rates of depression among women and the strong association between depression and suicide (Barlow & Durand, 2009). Girls and women are considered to be at higher risk of depression from early adolescence onwards, because of the greater social and biological challenges they face (Meehan et al., 2007). The higher rate of depression among women is possibly also linked to perceptions of uncontrollability and helplessness stemming from culturally induced sex roles which promote dependence and passivity in women (Barlow & Durand, 2009).

The reason for higher completed suicide rates among females in China is understood to be the absence of stigma surrounding suicide and the perspective that suicide is an honourable solution when a family breaks down (Barlow & Durand, 2009). The rapid cultural transition taking place in China from a traditional agrarian to a modern urban capitalist society has resulted in family disruption and the marginalisation of women (Bridge et al., 2006). Access to highly lethal pesticides is also considered to be a contributing factor to completed suicide among women in China (Bridge et al., 2006).

Similarly, Schlebusch et al. (2003) suggest that rapid changes in role expectations with the shift from traditional cultural identification to Western lifestyles could be a factor in the high rates of suicidal behaviour displayed by women in South Africa. South Africa has high levels of interpersonal violence and gender inequality (Burrows, Vaez, & Laflamme, 2007; Matthews et al., 2007) – factors which could also contribute to suicidal behaviour among women (Krug et al., 2002).

In South African studies, Mashego and Madu (2009) did not find any statistically significant difference between males and females in terms of suicidal ideation or attempted suicide. Similarly, Reddy et al. (2010) found no significant difference between adolescent males and females as far as attempted suicide is concerned. However, Joe et al. (2008) did find that adult females were at higher risk of attempting suicide, and the NIMSS reported that, as far as the general population is concerned, 4.6 more males than females had completed suicide in 2007 (Donson, 2008). Similarly, in the Bloemfontein and southern Free State areas, it was found that 4.6 more males (82.1%) than females (17.7%) had completed suicide between 2003 and 2007 (Stark et al., 2010).

#### *3.2.2.2. Race and suicidal behaviour*

Traditionally, global suicide rates have been higher among white people. This is still the case, although there has been an increase in suicide among black people, and there are high rates among indigenous groups such as the Native Americans (Barlow & Durand, 2009; Bridge et al., 2006; Krug et al., 2002). Among the Native American youth aged 15 to 24 years, the rate of suicide is the highest of any racial or age group in the US and suicide is the second leading cause of death among Native Americans aged 10 to 34 years (Dorgan, 2010). Tribes with high suicide rates also experience higher rates of alcoholism, incarceration, unemployment and loss of traditional culture (Bridge et al., 2006).

In the past, suicidal behaviour among the black population of South Africa has been under-researched for a number of reasons, including cultural misperceptions, a lack of funding for research, and a lack of equal access for the black population to adequate health care facilities under the apartheid system of

legal racial segregation (Schlebusch et al., 2003). From 1992 to 1998, mortality statistics did not include race as had previously been the case (Flisher et al., 2004). However, a number of recent studies in South Africa indicate that suicidal behaviour is prevalent among adolescents of all races.

Madu and Matla (2003) found that 21% of the adolescents surveyed in the Limpopo Province had attempted suicide. Of the adolescents surveyed, 95.5% were from various black ethnic groups and 4.5% were from other ethnic groups. Mashego and Madu (2009) found that 14.8% of the adolescents surveyed around Welkom and Bethlehem in the Free State had previously attempted suicide. Of the adolescents surveyed, 87.3% were black and 12.7% were categorised as 'other' (white, coloured and Asian/Indian). In his study on adolescents in the Northern Cape, George (2009) found that black adolescents experienced higher levels of suicidal ideation than coloured and white adolescents.

The South African National Youth Risk Behaviour Surveys of 2002 and 2008 have been representative of the South African youth (Reddy et al., 2003; Reddy et al., 2010) and further indicate that suicidal behaviour is prevalent among youths of all races in South Africa. Reddy and colleagues (2010) found that, in South Africa, of the youths who had made one or more suicide attempts in the six months prior to the survey, the highest percentage according to race was coloured (25.2%), followed by white (21.6%), then black (20.9%) and Indian (14.4%).

In his qualitative study, Laubscher (2003) examined the suicides of 11 young, successful, professional coloured men in Paarl from 1990 to 2000 from a cultural psychological perspective. The majority of these men were aged 25 to 35 years, were first-generation university graduates with no history of psychological

disorders and had been involved in or aligned with the goals of the anti-apartheid struggle. Laubscher suggests that a loss of a “sense of self-in-community” (2003, p. 141), which resulted from moving from a working class background to professional status and individualism, seems to have contributed to the suicides. Research has suggested that racial groups experiencing rapid cultural transition from traditional social values to Western values, together with the associated ambivalence, instability and less opportunity for advancement than expected, could face an increasing risk of suicidal behaviour (Beekrum, Valjee, & Collings, 2011; Joe et al., 2008). Substance abuse could also play a role in suicidal behaviour among the coloured population (Joe et al., 2008).

#### *3.2.2.3. Age and suicidal behaviour*

Suicide rates are generally higher among the elderly (Krug et al., 2002) and this can be attributed to medical illness and loss of social support, which can lead to hopelessness and depression (Barlow & Durand, 2009). However, there has been a marked increase in youth suicide in the USA between 1960 and 1988, when rates grew from 3.6 to 11.3 per 100 000 of the population (Barlow & Durand, 2009). Two national surveys of adolescent suicidal ideation and attempt in the USA in 1995 and 2005 showed that the lifetime prevalence of suicidal ideation had declined, while the prevalence of attempted suicide remained stable (Wolitzky-Taylor et al., 2010). There has been a decline in youth suicide in some countries between 1990 and 2000, possibly as a result of the stricter gun laws in America and Australia and the increase in the prescription and sale of selective serotonin reuptake inhibitors (SSRIs) for the treatment of depression (Bridge et al., 2006).



As far as South African adolescents are concerned, a comparison of the 2002 and 2008 South African National Youth Risk Behaviour Surveys indicates an increase in suicidal behaviour among the youth, with ideation increasing from 19.0% to 20.7% and attempted suicide increasing from 17.0% to 21.4% (Reddy et al., 2003; Reddy et al., 2010). Reddy et al. (2010) also reported higher rates of suicidal behaviour among older adolescents.

Beyond broad personal factors such as age, gender and race, dispositional factors have also been found to play a role in the stress and coping process.

#### *3.2.2.4. Dispositional factors*

Moos and Schaefer (1993) described personal coping resources, or stable dispositional characteristics, which influence the process of coping. These include ego development; self-efficacy; dispositional optimism; sense of coherence; cognitive, defense and coping styles; and problem-solving abilities (Moos & Schaefer, 1993). Coping strategies will be discussed in greater detail under panel 4 of the Integrated Stress and Coping Model.

Antonovsky (1987) described having a sense of coherence as a way of viewing the world as comprehensible, manageable and meaningful. He asserted that a strong sense of coherence has a positive influence on one's health (Eriksson & Lindström, 2005). Similarly, psychiatrist Frankl, following his self-observation and observation of prisoners in concentration camps during the holocaust, remarked that "everything can be taken from a man but one thing: the last of the human freedoms – to choose one's attitude in any given set of circumstances" (Frankl, 1963, p. 104). Frankl later developed logotherapy, in which he assisted his clients

in finding meaning in their suffering, for, as he quoted Nietzsche, “He who has a *why* to live can bear almost any *how*” (cited in Frankl, 1963, p. 164). The sense of meaning contributes to a sense of coherence which is regarded as a protective factor in stressful life circumstances.

Another dispositional trait, which serves as a protective factor, is self-esteem. Positive self-appraisals have been found to moderate the association between stressful life events and suicidality, indicating that positive self-appraisals lead to resilience to suicide (Johnson et al., 2010). In George’s (2009) study on adolescents in the Northern Cape, self-esteem was significantly and negatively associated with suicidal ideation and was found to make the largest contribution to the variance of suicidal ideation, suggesting that high self-esteem helps to protect an individual against suicidal ideation (George, 2009). According to research, explicit self-esteem, reflecting deliberate self-evaluative processes, largely explains the association between co-morbid symptoms of depression and social anxiety (De Jong, Sportel, de Hullu, & Nauta, 2011). These and other psychological disorders also play a critical role in suicidal behaviour as will be discussed in the next section.

#### *3.2.2.5. Psychological disorders and personality traits*

Studies show that more than 90% of people who have died from suicide had a psychological disorder, many of which went untreated (Barlow & Durand, 2009; Blumenthal, 1990). Of adolescent suicides, 75% have been associated with a mood disorder such as depression (Barlow & Durand, 2009). Similarly, a recent study in rural China, using psychological autopsy, found a strong association between psychological disorders and completed suicide, although a lower

prevalence of mental illness (48%) among suicide victims than elsewhere in China and in the West (Zhang, Xiao, & Zhou, 2010). This study also found mood disorders to be the most frequently diagnosed category (34.9%), followed by psychotic disorders (11.2%) and substance abuse disorders (6.4%).

A study by Moosa et al. (2005) in South Africa confirms a significant association between a past history of psychological disorder and attempted suicide. Reddy et al. (2010) found that, among the South African youth, 23.6% of learners had felt so sad or hopeless in the six months prior to the study that they had stopped participating in some of their usual activities for two or more consecutive weeks and that of those learners, 38.3% were required to seek treatment from a doctor or counsellor. These findings suggest high levels of mental health problems among the South African youth.

Substance abuse, such as alcohol abuse, has been associated with both increased depression (Boschloo, van den Brink, Penninx, Wall, & Hasin, 2011) and suicidality (Krug et al., 2002). In addition, an association between the initiation of pre-teen alcohol use and attempted suicide was found among adolescents in Georgia (Swahn, Bossarte, Ashby, & Meyers, 2010). According to Haw and Hawton (2011), drug abuse in females is associated with higher suicidal intent scores, while Humber, Piper, Appleby and Shaw (2011) purported that drug dependence is significantly associated with suicide in the first week of custody among prisoners in England and Wales.

In adults, antisocial and borderline personality disorders have been associated with suicidal behaviour while, in adolescents, conduct disorder and borderline personality disorder have been associated with suicide (Barlow & Durant, 2009;

Blumenthal, 1990; Eichelman, 2010). The co-morbidity of depression with one of these personality disorders increases the risk of suicide (Blumenthal, 1990).

Personality traits associated with youth suicide include inclinations to be withdrawn, perfectionistic, impulsive and aggressive, as well as adolescent worry and irritability (Blumenthal, 1990; Pickles et al., 2010). Other traits associated with suicide are cognitive rigidity and hopelessness (Blumenthal, 1990). Among psychiatric patients, anger has been broadly associated with violence, including self-directed violence, while psychopathic traits were differentially associated with violence against others, violence against the self and co-occurring violence (Swogger, Walsh, Homaifar, Caine, & Conner, 2011).

Research has suggested that personality traits are better predictors of suicidal behaviour than specific personality disorders (Blumenthal, 1990). Phillips (2010) has expressed the concern that those with impulsive personality traits or depressive symptoms may not have the psychosocial dysfunction required for a diagnosis to be made and, consequently, might not receive the appropriate intervention while still being at risk of suicidal behaviour.

In conclusion, personal factors considered with regard to suicidal behaviour include biographical factors, such as gender, race and age; dispositional factors, such as self-esteem, sense of coherence and coping strategies; psychological disorders, such as depression and substance abuse; and psychological traits, such as aggression and impulsivity. Beyond personal factors influencing suicidality, life transitions and crises also seem to be involved in increasing the risk of attempting suicide, as will be discussed in the following section.

### **3.2.3. Panel 3: Life transitions and life crises**

Panel 3, shown in Figure 1 (p. 34), refers to transitory environmental conditions such as life transitions and life crises (Moos & Holahan, 2003). The life transition of adolescence is relevant to this study and negative life events have been considered among the stressors assessed in this study. Negative life events could further exert their influence through changing ongoing daily stressors and resources (Daniels & Moos, 1990). Treatment programmes can also be regarded as transitory conditions. Ongoing environmental and personal factors, together with transitory conditions, shape cognitive appraisal and coping responses (Moos & Holahan, 2003).

Although adolescence is a normal life transition, it is a phase of life associated with rapid biopsychosocial change and associated stressors. These will be discussed next.

#### *3.2.3.1. Adolescent development*

Adolescence is considered to span from approximately age of 12 to 20 or “when the individual becomes relatively independent of parents and begins to assume adult roles” (Sigelman & Rider, 2009, p. 4). Adolescence cannot be clearly defined by age since it begins with puberty, which starts approximately between the ages of 11 and 13, and ends between the ages of 17 and 21 years, when the person meets societal expectations of adulthood (Louw, Louw, et al., 2007; Marieb & Hoehn, 2007).

Adolescents experience physical development, with a growth spurt caused by increased levels of growth hormones, as well as sexual maturation. The gonadal

hormones, androgens in males and oestrogen and progesterone in females, are the primary hormones responsible for sexual maturation and the development of secondary sex characteristics such as pubic and axillary hair. Adolescent girls experience the onset of menarche between the ages 11 and 14, while adolescent boys begin to mature sexually from around the age of 11 (Louw, Louw, et al., 2007; Marieb & Hoehn, 2007; Sigelman & Rider, 2009).

Freud (1938) described five stages of psychosexual development in a person's life, ending with the genital stage, which typically starts at the age of 12 with puberty. He maintained that "puberty reawakened sexual instincts as youths sought to establish mature sexual relationships and pursue the biological goal of reproduction" (Sigelman & Rider, 2009, p. 36). Erikson (1965) focused less on sexual urges and more on the social influences on development and described eight stages or psychosocial conflicts throughout the lifespan. The unsuccessful resolution of a conflict will negatively influence subsequent stages. During the stage of identity versus role confusion, adolescents need to establish their social and vocational identities or else remain confused about their adult roles (Erikson, 1965; Sigelman & Rider, 2009; Taylor, Peplau & Sears, 2006).

Piaget identified four different periods of cognitive development, indicating that people think differently at different ages (Flavell, 1963; Sigelman & Rider, 2009). Adolescents in the formal operations stage can think about abstract concepts and hypothetical situations and can consider the long-term consequences of actions. Problem-solving abilities gradually develop to become more systematic as adolescents learn to engage in more advanced scientific reasoning and learn to

shift flexibly between intuitive and scientific reasoning as appropriate to the situation (Sigelman & Rider, 2009).

Since the adolescent is developing physiologically and maturing sexually, it follows that important psychosocial development would also take place during this time. The adolescent needs to adjust to his or her rapidly changing body image and developing identity. He or she needs to adjust to relating differently to people of the opposite sex and to his or her own peers and family members. The adolescent may experience anxiety or embarrassment regarding more rapid or slower development than his or her peers or societal expectations (Louw, Louw, et al., 2007; Sigelman & Rider, 2009).

The core competencies for positive youth development and risk prevention, as identified by Guerra and Bradshaw (2008), are a positive sense of self, self-control, decision-making skills, a moral belief system, and pro-social connectedness. Supportive maternal-adolescent interactions have been associated with the development of adolescent autonomy with regard to both individual identity and interpersonal relationships (Liu & Yeh, 2011). Parental support has also been associated with a delay in the first sexual intercourse of adolescents (De Graaf, Vanwesenbeeck, Woertman, & Meeus, 2010).

#### *3.2.3.2. Stress related to adolescent development*

In general, it has been found that early physical maturation is more beneficial to males, while late maturation is more beneficial to females. Males who mature at a later stage tend to be less attractive, less well-balanced or popular and they

experience more anxiety, depression, guilt, inferiority and rejection than those who mature at an early stage (Louw, Louw, et al., 2007; Sigelman & Rider, 2009).

On the other hand, a female who matures early is often not emotionally mature enough for the intimate relationships associated with her physical appearance. In addition, she may be isolated from her peers because of her physical maturity and is more likely to have poor academic performance, early sexual activity and unplanned pregnancy (Louw, Louw, et al., 2007; Sigelman & Rider, 2009).

Development in cognition and problem-solving abilities could result in the adolescent becoming more argumentative, idealistic and critical, which may give rise to more conflict with parents, especially if the parents do not accommodate the adolescent's need for growing independence (Louw, Louw, et al., 2007; Sigelman & Rider, 2009) and development of decision-making skills (Partridge, 2010). Aggression in adolescence increases during the middle school years (Kim, Kamphaus, Orpinas, & Kelder, 2011) which, in turn, increases stress in relationships.

Other stressors associated with adolescence include perceived and actual overweight (Swahn et al., 2009), body dissatisfaction (Dave & Rashad, 2009; Kim & Kim, 2009), eating disorders (Sigelman & Rider, 2009) and dealing with homosexuality (Gilchrist & Sullivan, 2006). It appears that homosexual youths have a higher depression and attempted suicide rate than heterosexual youths (Louw, Louw, et al., 2007; Savin-Williams, 2001; Sigelman & Rider, 2009). This has also been observed among homosexual adults (Mathy, Cochran, Olsen, & Mays, 2011; Teasdale & Bradley-Engen, 2010). In addition to the stressors



frequently associated with adolescence, negative life events during this time may further predispose the adolescent to suicidal behaviour, as discussed below.

#### 3.2.3.3. *Life crises*

With regard to youth suicidal behaviour, Blumenthal (1990) reported that youths who attempt suicide have increased life stress and have experienced many early losses, as well as significant family changes compared with other psychiatrically disturbed or depressed adolescents and the general population. Their lives were marked by parental death, divorce or separation, a greater number of negative life events, abuse, running away from home, unwanted pregnancies and fewer personal resources than adolescents who had not attempted suicide (Blumenthal, 1990). A large study across 21 countries has shown that childhood adversities, especially sexual and physical abuse, are powerful predictors of the onset and persistence of suicidal behaviours (Bruffaerts et al., 2010) and a study among Chinese women has strongly associated childhood sexual abuse with major depression (Cong et al., 2011).

In South Africa, a study by Moosa and colleagues (2005) has confirmed a significant association between past physical or sexual abuse and suicidal behaviour. Studies in South Africa have indicated that South African youths have higher scores for negative life experiences than American youths as reported by George (2009), Moos and Moos (1994), and Wissing (1996). This could be attributed to high levels of crime and violence, as well as the socioeconomic challenges faced by South Africans (George, 2009; Govender & Killian, 2001; Kubeka, 2008; Wissing, 1996).

In conclusion, transitory environmental stressors related to adolescent development, which include adjusting to rapid physical and psychosocial changes, have been discussed. Maturing faster or slower than peers can be a stressor, while other stressors associated with development include body dissatisfaction and homosexual orientation. Childhood adversities are strongly associated with suicidal behaviour. Negative life events could further exert their influence through changing ongoing stressors and resources (Daniels & Moos, 1990) which, in turn, influence cognitive appraisal and the choice of coping strategies employed (Hobfoll, 1998; Moos & Moos, 1994). Cognitive appraisal and coping strategies are important areas to consider and will be discussed next.

#### ***3.2.4. Panel 4: Cognitive appraisal and coping responses***

Appraisal and coping strategies have not been measured in this study. They have, however, been discussed as important to the stress and coping process. Panel 4, as depicted in Figure 1 (p. 34), refers to the cognitive appraisal and coping strategies employed by the individual. Dispositional approaches assess the preferred coping styles used by a person in general, while contextual approaches assess the coping styles employed by an individual in specific stressful situations. Both approaches are considered to be important (Gaylord-Harden, Cunningham, Holmbeck, & Grant, 2010; Moos & Holahan, 2003). The coping processes are transactional with mutual feedback. Appraisal and coping strategies are applied in response to the three sets of factors – environmental, individual and transitional – and shape the social contexts (Moos & Holahan, 2003).

Moos and Schaefer (1993) identified personal coping resources such as ego development, self-efficacy, optimism, sense of coherence, cognitive styles, defense and coping styles and problem-solving abilities. In addition, appraisal and coping processes have been identified as critical factors in dealing with stressors.

Folkman, Lazarus, Dunkel-Schetter, DenLongis and Gruen (1986) described three processes in stress: primary appraisal (the process of perceiving something as a threat or benefit to oneself), secondary appraisal (the process of thinking of a potential response to the threat or benefit), and coping (the process of carrying out that response).

These processes do not occur in a linear fashion, but instead, may cycle repeatedly. For example, if the person's primary or secondary appraisal changes, his or her response may also change (Carver, Scheier, & Weintraub, 1989; Folkman & Lazarus, 1985). Cognitive restructuring in cognitive behavioural therapy aims to help the person change his or her appraisal of a threat (Sarafino, 2006) so that a more adaptive response to a stressor can be selected. As an important coping strategy, positive self-appraisal has also been recognised to moderate the association between stressful life events and suicidality (Johnson et al., 2010).

Two general types of coping have been identified by Lazarus and colleagues (Carver et al., 1989; Folkman et al., 1986). Broadly speaking, problem-focused coping aims to solve the problem or to do something to change the source of stress, while emotion-focused coping aims to reduce or manage the emotional distress arising from the situation. While both types of coping are usually employed in stressful situations, problem-focused coping is predominantly used in

situations where it is believed that something can be done, whereas emotion-focused coping is primarily employed in situations where it is believed that little can be done (Carver et al., 1989).

However, several factors have been identified as significant to coping outcomes, showing the simple division between problem-focused or emotion-focused coping to be inadequate. Fourteen coping strategies were identified by Carver and associates in the COPE scale as *problem-focused coping*, which includes active coping, planning, suppression of competing activities, restraint coping and seeking social support for instrumental reasons; *adaptive emotion-focused coping*, which includes seeking social support for emotional reasons, positive reinterpretation and growth, acceptance, turning to religion and humour; and *maladaptive emotion-focused coping* which includes focus on and venting of emotions, denial, behavioural disengagement, mental disengagement and alcohol-drug disengagement (Carver et al., 1989; Cascone, Zimmermann, Auckenthaler, & Robert-Tissot, 2011; Moos & Holahan, 2003).

The last five coping strategies could be considered to be ineffective or dysfunctional coping strategies (Hobfoll, 1998). These strategies, such as denial or alcohol-drug disengagement, have been associated with additional stressors such as poor academic performance and problems in relationships (Cascone et al., 2011), depression and suicidal ideation (Horwitz et al., 2011). Loots (2008) also found a statistically significant association between suicidal ideation and dysfunctional coping strategies, including denial, among South African youths in the Northern Cape Province.

Some studies have shown that those who lack personal, social and other resources are more likely to engage in dysfunctional coping, whereas those who possess resources use the more effective emotion-focused and problem-focused coping strategies (Hobfoll, 1998). Furthermore, parent-child interactions, which support autonomy, have been associated with more adaptive adolescent coping (Seiffge-Krenke & Pakalniskiene, 2011).

As discussed previously, the coping process includes the primary appraisal of a threat, secondary appraisal of possible courses of action, and a choice of action in response to the threat. While a person usually has a stable coping style, the coping strategies employed in specific situations vary from context to context (Moos & Holahan, 2003). The coping styles and strategies employed are influenced by various individual and environmental factors, including parent-child interactions and availability of resources which, in turn, have a reciprocal effect on the situation.

### **3.2.5. Panel 5: Health and well-being outcomes**

Panel 5, shown in Figure 1 (p. 34), refers to the health and well-being outcomes of the stress and coping process. In this study, the health outcomes being considered are attempted suicide, which is regarded as a negative outcome, and non-attempt of suicide, which is regarded as a positive outcome of the stress and coping process.

The coping process includes appraisal of the stressful situation, appraisal of a response, and an actual response. The complex interactions between the individual and environmental factors, together with the resources and the coping strategies employed, will influence the outcome of the process, whether positive or

negative. Negative health and well-being outcomes of stress could include illness such as ulcers, substance dependence and substance abuse, stress-related accidents, and deterioration in functioning and relationships.

Conversely, stressors can be a stimulus for personal growth and promote resilience (Moos & Schaefer, 1993) as positive self-appraisals (Johnson et al., 2010) and positive religious coping strategies have been shown to do (Carpenter, Laney, & Mezulis, 2011; Kasen, Wickramaratne, Gameroff, & Weissman, 2011). An acute crisis can result in improved problem-solving skills and support from family and friends, while prolonged stress can provide experience in adaptive coping and result in the development of attributes such as wisdom, tolerance and empathy (Moos & Schaefer, 1993).

Important health and well-being outcomes could be the negative outcome of attempted suicide or, alternatively, the positive outcome of never having attempted suicide. These are the health and well-being outcomes focused on in this study.

### **3.3. Conclusion**

The general Integrated Stress and Coping Model has provided a framework for understanding suicidal behaviour as a negative outcome of the stress and coping process. Broad dimensions influencing this process include environmental factors, personal factors, life transitions and crises, and coping responses. The theory and literature relevant to the entire Integrated Stress and Coping Model, with application to suicidal behaviour and with special focus on the adolescent, has been reviewed in this chapter. Since the purpose of this study was limited to investigating the role of specific demographic and environmental factors in

attempted suicide, discussion in further chapters has been narrowed down to those factors directly relevant to the aims and findings of this study.

# CHAPTER 4

## 4. Methodology

### 4.1. Introduction

The research methodology employed in this study will be discussed in this chapter and will include an overview of the research question, variables, data gathering, sampling and measuring instrument. Finally, the specific statistical procedures used to address the research questions will be reviewed.

### 4.2. Aim and research question

The overarching aim of the study was to investigate the role of life stressors (risk factors) and social resources (protective factors) in attempted suicide for a sample of adolescents in the Free State Province of South Africa. The objective of this study was therefore to identify those variables which distinguish between two groups of adolescents, i.e. those who had previously attempted suicide and those who had not attempted suicide.

According to the aim of the study, the following research question was formulated:

**To what extent can life stressors, resources and biographic variables be used to predict whether adolescents are at risk of attempting suicide?**

The specific goals of this study were to investigate the following among a multi-racial sample of Free State adolescents:



- the role of demographic factors, such as race and gender, in attempted suicide;
- the role of certain psychosocial stressors in attempted suicide; and
- the role of certain psychosocial resources in attempted suicide.

#### **4.3. Variables**

The criterion variable was the grouping of attempters/non-attempters of suicide, while the predictor variables (independent variables) were the perceived life stressors and resources of adolescents. Since the literature indicates that gender and race may also play a significant role in suicide attempt, these biographical aspects were also investigated in this study as predictor variables.

#### **4.4. Research design**

In order to achieve the goals of this study, a non-experimental, cross-sectional research design (Flick, 2011; Huysamen, 1996a) was used. A limitation of the cross-sectional design is that it is not possible to draw conclusions from the findings with regard to any causal relationship between demographic variables, life stressors and resources, and attempted suicide (Flick, 2011).

#### **4.5. Ethical considerations**

Ethical approval for conducting this study was obtained from the research committee of the Faculty of Humanities, University of the Free State. The Free State Department of Education and the respective principals of the participating schools granted permission for the study to be conducted. All of the participants were informed about the purpose and nature of the study, the anonymous and

confidential nature of their participation and the objectives of the research before informed consent was obtained (Annexure A). The participants took part in the study on a voluntary basis and were given the opportunity to withdraw from participation at any stage of the process. After administration of the test, opportunity was provided for learners to be debriefed in order to address any emotional responses or questions resulting from the test administration process.

#### **4.6. Data gathering**

Tests were administered by a psychologist and psychometrist in the respective schools on a school day set by the Department of Education. Learners were assessed in groups of approximately 50 to facilitate good rapport between learners and test administrators who were available to answer questions regarding the questionnaire during the test.

#### **4.7. Sampling**

Eighteen schools, representative of all five districts of the Free State Province, were selected by means of a stratified, random sampling technique to ensure a balanced representation of race<sup>2</sup>, gender and age groups in the sample. A convenience sample of 1 200 participants (about 66 from each school) was then selected from Grades 11 and 12. As 167 incomplete data sets were excluded, data from 1 033 learners were used in the final analysis. The ages of the participants ranged from 16 to 24 years (mean age 17.41 and standard deviation

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<sup>2</sup> In this study the black, white and coloured racial groups have been distinguished. The purpose is for comparison of the experience of stressors and resources by the different groups, recognising that socio-economic disparities between the races have persisted long after the dismantling of the apartheid system of racial segregation.

1.11). The sample frequency distribution according to gender, race and suicide attempt is presented in Table 2.

**Table 2: Frequency distribution of sample according to gender, race and suicide attempt**

<b>Biographic Variables</b>	<b>N</b>	<b>%</b>
<b>Gender</b>		
Male	437	42.3
Female	552	53.4
Not indicated	44	4.3
<b>Total</b>	<b>1033</b>	<b>100.0</b>
<b>Race</b>		
Black	405	39.2
White	427	41.3
Coloured	201	19.5
<b>Total</b>	<b>1033</b>	<b>100.0</b>
<b>Suicide attempt</b>		
Yes	129	12.5
No	853	82.6
Not indicated	51	4.9
<b>Total</b>	<b>1033</b>	<b>100.0</b>

As seen in Table 2, of the participants, 437 (42.3%) were male, 552 (53.4%) were female and 44 (4.3%) did not indicate their gender. With regard to race, 405 (39%) were black, 427 (41%) were white and 201 (20%) were coloured. Owing to the small number of Asian people in the Free State Province, Asian participants were not included in the study. Of all the participants, 129 (12.5%) reported that they had previously attempted suicide.

According to Statistics South Africa, in 2001, females comprised 52.1% of the population in the Free State (Statistics SA, 2003), indicating that the sample, with 53.4% of subjects being female, is adequately representative of gender.

With regard to race, black people were under-represented (39.2%), while white (41.3%) and coloured people (19.5%) were over-represented in the sample, when compared with the Census data of 2001 of the Free State population in which black people comprised 88.0%, white people 8.8%, coloured people 3.1% and Asian people 0.1% (Statistics SA, 2003). Black people were also under-represented when compared with the mid-year population estimates for 2011 of the population in South Africa, with black people comprising 79.0%, white people 9.0%, coloured people 9.0% and Asian people 2.5% (Statistics SA, 2011). The under-representation of black people in the sample has been attributed to the fact that a number of the randomly selected schools, particularly rural schools serving regions predominantly populated by black learners, were not available to participate in the study due to a strike in progress by the teachers at the time.

#### **4.8. Measuring instruments**

The measuring instruments used for this study were a self-compiled biographical questionnaire and the Life Stressors and Social Resources Inventory, Youth Form (LISRES-Y) (Moos & Moos, 1994).

Questionnaires were translated from English into Afrikaans and Sesotho, using the back-translation method (Foxcroft & Roodt, 2005). The questionnaires were first translated into Afrikaans and Sesotho by an accredited language practitioner. The Afrikaans and Sesotho questionnaires were then translated back into English by a second accredited language practitioner to ascertain whether they were a valid

reflection of the original English version. Discrepancies arising between the original and second English translations were resolved through consensus between the two language practitioners and the researcher. Participants had the option of completing the questionnaire in one of the three languages, i.e. English, Afrikaans and Sesotho. The questionnaires will be discussed in more detail in the following section.

#### ***4.8.1. Biographical questionnaire***

The biographical questionnaire was used to gather demographic information on grade, age, gender, race and previous suicide attempt. No timeframe was attached to the question regarding suicide attempt and no further explanation was provided to participants with regard to the definition of suicide attempt.

#### ***4.8.2. Life Stressors and Social Resources inventory, Youth Form***

The LISRES-Y aims to provide “an integrated picture of a youth’s current life context” and assesses “stable life stressors and social resources as well as changes in them over time” (Moos & Moos, 1994, p. 1).

This inventory was used to measure what the participant considered to be stressors and resources in his or her environment. The LISRES-Y has 209 items with sixteen subscales. Nine subscales measure life stressors and seven subscales measure social resources. The subscales of Life Stressors (SS) are: Physical Health (PH), Home and Money (HM), Parents (SPAR), Siblings (SSIB), Extended Family (SFAM), School (SSCH), Friends (SFR) and Boyfriend/Girlfriend (SBG) and Negative Life Experiences (NLE). The subscales for Social Resources are: Parents (RPAR), Siblings (RSIB), Extended Family (RFAM), School (RSCH),

Friends (RFR) and Boyfriend/Girlfriend (RBG) and Positive Life Experiences (PLE) (Moos & Moos, 1994).

While the variables, Physical Health and Home and Money, were considered to be potential life stressors only, all the remaining variables were considered to be both potential life stressors and resources. The questions included a timeframe of the past year (Moos & Moos, 1994).

For each variable, the subscale totals for resources and stressors were calculated separately. For the stressors subscales, a higher score represented a greater number and/or severity of stressors and, similarly, for the resources subscales, a higher score represented a greater number and/or better quality of resources reported. For this study, raw scores instead of standardised scores were used.

#### *4.8.2.1. Internal consistency coefficients*

In a previous study using LISRES-Y, the internal consistencies ranged from .66 to .92 for the stressor subscales (Moos & Moos, 1994) and from .78 to .93 for the social resources subscales (Huebner, Ash, & Laughlin, 2001; Moos & Moos, 1994) for American adolescents. In a study conducted in South Africa by Wissing (1996) among students of North-West University and the University of Limpopo, internal consistency coefficients ranged from .79 to .88 for LISRES-Y Life Stressor subscales and from .78 to .91 for LISRES-Y Social Resources subscales. In another South African study among Northern Cape adolescents, Basson reported internal coefficients ranging from .72 to .88 for LISRES-Y Life Stressor subscales and from .70 to .90 for LISRES-Y Social Resources subscales (2008).

In order to determine the internal consistency coefficients of the LISRES-Y subscales for this study, Cronbach alpha coefficients were calculated for all the subscales as shown in Table 3.

**Table 3: Cronbach  $\alpha$  coefficients for life stressors and resources subscales**

<b>Measurement</b>	<b>Abbreviation</b>	<b><math>\alpha</math> coefficient</b>
<b>Stressors:</b>		
Physical Health	PH	.83
Home/Money	HM	.89
Parents	SPAR	.91
Siblings	SSIB	.84
Extended Family	SFAM	.79
School	SSCH	.81
Friends	SFR	.77
Boyfriend/Girlfriend	SBG	.78
Negative Life Events	NLE	.81
<b>Measurement</b>	<b>Abbreviation</b>	<b><math>\alpha</math> coefficient</b>
<b>Resources:</b>		
Parents	RPAR	.91
Siblings	RSIB	.92
Extended Family	RFAM	.89
School	RSCH	.85
Friends	RFR	.84
Boyfriend/Girlfriend	RBG	.96
Positive Life Events	PLE	.74

As seen in Table 3, satisfactory internal consistency coefficients were obtained, ranging from .77 to .91 for Life Stressors, and from .74 to .96 for Social Resources. According to Foxcroft and Roodt (2005) and Huysamen (1996b), the reliability coefficients may be .65 or higher when the measurement is used to

make decisions about groups and .85 or higher if the measurement is used to make decisions about individuals. This confirms the reliability of the measurement and indicates that the findings from the analysis may be applied with confidence.

#### **4.9. Statistical analysis**

A statistical analysis was performed, using the SPSS Version 18.0 computer programme (SPSS Incorporated, 2011). The descriptive statistics obtained include frequencies and percentages of attempted suicide in order to measure the prevalence of suicide attempt for the whole group and for the gender and race sub-groups. Means and standard deviations of the relevant independent variables measured on continuous scales were obtained for the whole group, as well as for groups of attempters/non-attempters of suicide.

For this study, it would have been possible to perform a discriminate analysis, a technique used to distinguish between two groups based on a set of variables (Howell, 2010). However, Everitt (1996) and Howell (2010) argue that firstly, discriminate analysis can produce a probability of success that lies outside the range of 0 and 1, but that such probabilities are not possible. Secondly, they contend that discriminate analysis depends on the assumption of the independent variables showing a normal distribution which, in many cases, is not realistic. Both of the above-mentioned authors conclude that logistic regression would be the recommended alternative technique for analysis, since it does not result in probabilities outside the range of 0 and 1, and does not require restrictive assumptions of normality of the independent variables, which can be categorical or continuous.



Consequently, logistic regression analysis was conducted in this study in order to establish which gender, race, stressors and resources were significantly associated with the increased possibility of attempting suicide. Separate logistic regression analyses were performed for gender, race, stressors and resources at both the 1% and 5% levels of significance.

With reference to the research question for this study, it is clear that the criterion variable (dependent variable) of suicide attempt/non-attempt is dichotomous in nature. For the purposes of the analysis, code 0 was assigned to non-attempters of suicide, while code 1 was assigned to attempters. However, the predictor variables (independent variables), namely life stressors and resources, were measured on a continuous scale and were used as such in the analysis.

In order to investigate the role of gender and race as predictor variables, categorical data was applicable. Gender is dichotomous in nature and, in this study; code 1 was assigned to male participants and code 0 to female participants. However, with regard to race, there were three categories, which necessitated the creation of K-1 dummy variables; for three categories, it was therefore necessary to create two dummy variables. Each subject was assigned a value of 0 or 1 on the dummy variable. For each of the dummy variables, a value of 0 indicated that the subject did not belong to the group, while the value 1 indicated that the subject did belong to the group. One of the groups in this case, the group of coloured participants – was not represented by a dummy variable.

Finally, a univariate analysis was performed in order to determine the extent to which the identified predictor variables with regard to gender, race, stressors and resources contribute towards the likelihood of attempting suicide.

In conclusion, the research methodology employed in this study has been discussed, including an overview of the research question, variables, data gathering, sampling and measuring instrument. Finally, the specific statistical procedures used to address the research questions have been reviewed.

The descriptive statistics (frequencies, means and standard deviations) of all the predictor variables have been presented, together with the results of the logistic regression analyses and univariate analysis, in the following chapter.

# CHAPTER 5

## 5. Results

### 5.1. Introduction

In this chapter, the presentation of and discussion on descriptive statistics include frequencies and percentages of suicide attempt according to gender and race. Means and standard deviations of the relevant independent variables, which were measured on continuous scales, have also been presented and briefly discussed. This is followed by the presentation and discussion of the results of the logistic regression analyses.

### 5.2. Descriptive statistics

Of the 1 033 adolescents surveyed, 129 (12.5%) had attempted suicide. Of those who had attempted suicide, 100 were female, 26 were male and three did not indicate their gender. Over three times more females (18.1%) than males (5.9%) had attempted suicide.

**Table 4: Suicide attempt according to race**

Suicide Attempt	Black		White		Coloured		Total	
	n	%	n	%	n	%	n	%
<b>Yes</b>	41	10.1	40	9.4	48	23.9	<b>129</b>	<b>12.5</b>
<b>No</b>	324	80.0	383	89.7	146	72.6	<b>853</b>	<b>82.6</b>
<b>Not indicated</b>	40	9.9	4	0.9	7	3.5	<b>51</b>	<b>4.9</b>
<b>Total</b>	<b>405</b>	<b>100.0</b>	<b>427</b>	<b>100.0</b>	<b>201</b>	<b>100.0</b>	<b>1 033</b>	<b>100.0</b>

Percentages of suicide attempt according to race, as shown in Table 4, indicate that the highest percentage was found among coloured participants (23.9%), followed by black participants (10.1%) and white participants (9.4%).

The means and standard deviations for those predictor variables which were measured on continuous scales were calculated for the group as a whole and for the groups of attempters/non-attempters of suicide. The results are shown in Table 5 (p. 79).

**Table 5: Means ( $\bar{X}$ ) and standard deviations (SD) of the predictor variables for the whole group and for suicide attempters and non-attempters**

Predictor variables	Min	Max	Overall (N = 1 033)		Attempters (n = 129)		Non-attempters (n = 853)	
			$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
<b>Stressors:</b>								
Physical Health	0	18	0.88	2.30	0.69	1.97	0.86	2.26
Home/Money	0	33	8.55	7.68	11.67	7.72	7.92	7.44
Parents	0	28	7.51	5.54	9.98	5.94	7.20	5.39
Siblings	0	24	8.10	5.76	9.81	6.60	7.84	5.55
Extended Family	0	20	5.97	4.58	8.17	4.90	5.68	4.44
School	0	44	16.30	8.15	19.40	8.86	15.94	7.91
Friends	0	24	7.27	4.65	8.02	5.24	7.18	4.55
Boyfriend/ Girlfriend	0	20	4.23	4.51	4.96	4.28	4.11	4.53
Negative Life Events	0	43	12.30	7.12	16.95	8.10	11.60	6.72
<b>Resources:</b>								
Parents	0	20	10.02	5.92	8.33	4.97	10.36	6.04
Siblings	0	20	11.41	6.62	11.09	6.80	11.61	6.59
Extended Family	0	28	15.46	7.65	14.51	7.48	15.75	7.57
School	0	20	9.75	5.53	9.70	6.12	9.73	5.45
Friends	0	40	25.10	8.38	24.70	8.22	25.28	8.42
Boyfriend /Girlfriend	0	20	10.66	8.05	10.32	7.34	13.40	8.10
Positive Life Events	0	26	11.32	4.56	11.19	4.15	12.25	4.63

According to Table 5, (p. 79) apart from Physical Health, for all the stressor subscales, the group of attempters of suicide had higher means than the non-attempters, while, for all of the resources subscales, the group of attempters of suicide had lower means than the group of non-attempters.

Means and standard deviations were presented in order to draw a general comparison of tendencies between attempters/non-attempters of suicide. However, since these comparisons do not contribute directly to the achievement of the research aim of this study, statistical analysis was not applied as a way of comparing means, and conclusions with regard to the differences between the groups cannot be drawn on this basis. Consequently, the means and standard deviations have not been further discussed. The results of the logistic regression analyses will now be discussed.

### **5.3. Logistic regression analyses**

Logistic regression analyses were conducted in order to establish which gender, race, stressors and resources were significantly associated with the increased odds of attempting suicide. Separate logistic regression analyses were performed for gender, race, stressors and resources at both the 1% and 5% -levels of significance.

As previously mentioned, the dependent variable (attempters/non-attempters of suicide) is dichotomous in nature. Consequently, code 0 was assigned if the adolescent was a non-attempter of suicide and code 1 was assigned if the adolescent was an attempter of suicide. It is important to note that the SPSS-statistical programme uses a model that predicts the higher value, which, in this

case, is code 1, so that it would predict the attempters of suicide (SPSS Incorporated, 2011).

### **5.3.1. Biographical variables**

A logistic regression analysis was performed to predict the odds of an adolescent previously having attempted suicide, using two biographical variables as predictors, namely gender and race.

For the purpose of analysis, race was divided into two dummy variables. Firstly, the model needed to be tested to determine whether or not there was a significant difference between the complete model (with all the predictors), and the model with only the intercept. The Chi-square ( $\chi^2$ ) value of 57.149, degrees of freedom ( $df$ ) = 3;  $n$  = 982, was significant at the 1% -level of significance. Secondly, the Hosmer-Lemeshow test was performed to test the null hypothesis stating that there was a linear relationship between the predictor variables and the log odds of the criterion variable. A Chi-square value of 5.524 ( $df$  = 4) was obtained, which is non-significant at the 5% -level ( $p$  = .238) and, consequently, it could be accepted that the model was a suitable fit for the data. The model could be relied upon to correctly categorise 86.7% of the subjects. The resulting logistic regression coefficients, Wald test and odds ratio for race and gender, have been presented in Table 6 (p. 82).

**Table 6: Logistic regression predicting suicide attempt from biographical variables gender and race**

Predictor	B	Wald $\chi^2$	<i>p</i>	Odds ratio Exp(B)
Gender	-1.259	29.043	.000	0.284
Race 1 (Black)	-0.945	14.918	.000	0.389
Race 2 (White)	-1.089	19.848	.000	0.336

Table 6 shows that the variables, gender and race, had significant partial effects, at the 1% -level of significance. The odds ratio for gender indicates that, for males, the odds of having attempted suicide was 0.284 times that of females. Inverting the odds ratio for easier interpretation indicates that the odds of having attempted suicide, was approximately three times higher for female than for male adolescents.

For a better understanding of these results, a univariate analysis was performed for gender. Univariate analyses ( $\chi^2$  test) indicate that female adolescents (33%) were more likely to have attempted suicide than male adolescents (12%),  $\chi^2$  ( $df = 1$ ,  $n = 946$ ) = 32.970;  $p = .000$ .

The odds ratios of the race dummy variables compared the other racial groups with the coloured group. For the dummy variable Race 1 (black) the 0.389 odds ratio means that the odds of having attempted suicide were only 0.389 times that of the coloured group. As far as the dummy variable Race 2 (white) was concerned, the odds of having attempted suicide were only 0.336 times that of the coloured group. Inverted odds ratios for the dummy variables indicate that the odds of having attempted suicide by the coloured adolescents were 2.6 times



higher than for the black adolescents and almost three times higher than for the white adolescents.

For a better understanding of these results, a univariate analysis was performed for race. The univariate analysis indicates that the coloured adolescents (33%) were more likely to have attempted suicide than the black (16%) or the white adolescents (14%),  $\chi^2 (df = 2; n = 982) = 29.080; p = .000$ .

The logistic regression analysis of life stressors as predictors of adolescent suicide attempt will be discussed in the following section.

### **5.3.2. Life stressors**

A logistic regression analysis was performed to predict the odds of an adolescent previously having attempted suicide, using the nine life stressors as predictors.

Firstly, the model needed to be tested to determine whether or not there was a significant difference between the complete model (with all the predictors) and the model with only the intercept. The  $\chi^2$ -value of 88.724 ( $df = 9; n = 982$ ) was significant at the 1% -level of significance. Secondly, the Hosmer-Lemeshow test was used to test the null hypothesis stating that there was a linear relationship between the predictor variables and the log odds of the criterion variable. In this case, a Chi-square value was also calculated by comparing the observed frequencies with the expected frequencies from the linear model.

A non-significant Chi-square value indicates that the data is well-suited to the model. A Chi-square value of 9,743 ( $df = 8$ ) was obtained, which is non-significant at the 5% -level ( $p = .284$ ) and, consequently, it could be accepted that the model was a suitable fit for the data. The model could be relied upon to correctly

categorise 87.1% of the subjects. The logistic regression coefficients, Wald test and odds ratio of each of the nine life stressors, are presented in Table 7.

**Table 7: Logistic regression predicting suicide attempt from life stressors**

Predictor variable	B	Wald $\chi^2$	<i>p</i>	Odds ratio Exp(B)
Physical Health	-0.069	1.934	.164	0.933
Home/Money	0.032	6.036	.014**	1.033
Parents	0.038	3.870	.049**	1.038
Siblings	-0.002	0.015	.904	0.998
Extended Family	0.063	7.214	.007*	1.065
School	0.027	3.336	.068	1.027
Friends	0.029	3.363	.066	0.998
Boyfriend/Girlfriend	-0.016	0.444	.505	0.984
Negative Life Events	0.070	21.362	.000*	1.073

\*\**p* ≤ .05

\**p* ≤ .01

In Table 7, it can be seen that the variables with significant partial effects were Home/Money and Parents, at the 5% -level of significance; and Extended Family and Negative Life Events, at the 1% -level of significance. From the odds ratios it can be concluded that:

- a one-point increase on the Home/Money scale as stressor will increase the odds of attempting suicide with a multiplicative factor of 1.03;
- a one-point increase on the Parents scale as stressor will increase the odds of attempting suicide with a multiplicative factor of 1.04;

- a one-point increase on the Extended Family scale as stressor will increase the odds of attempting suicide with a multiplicative factor of 1.07; and
- a one-point increase on the Negative Life Events scale as stressor will increase the odds of attempting suicide with a multiplicative factor of 1.07.

In order to achieve a better understanding of these findings, a univariate analysis was conducted by performing *t*-tests for the independent groups. The results are shown in Table 8.

**Table 8: Univariate analysis for stressors**

Predictor variable Stressors	Attempter		Non-attempter		<i>t</i>	<i>p</i>
	$\bar{X}$	SD	$\bar{X}$	SD		
Home/Money	11.67	7.72	7.92	7.44	5.317	.000*
Parents	9.98	5.94	7.20	5.39	5.372	.000*
Extended Family	8.17	4.90	5.68	4.44	5.856	.000*
Negative Life Events	16.95	8.10	11.60	6.72	8.190	.000*

\* $p \leq 0.01$

The results show that those who had attempted suicide experienced significantly higher levels of stress regarding Home/Money ( $\bar{X} = 11.67$ ; SD = 7.72) than those who had not attempted suicide ( $\bar{X} = 7.92$ ; SD = 7.44),  $t = 5.317$ ;  $p = .000$ .

Those who had attempted suicide experienced significantly higher levels of stress regarding Parents ( $\bar{X} = 9.98$ ; SD = 5.94) than those who had not attempted suicide ( $\bar{X} = 7.20$ ; SD = 5.39),  $t = 5.372$ ;  $p = .000$ .

Those who had attempted suicide experienced significantly higher levels of stress regarding Extended Family ( $\bar{X} = 8.17$ ;  $SD = 4.90$ ) than those who had not attempted suicide ( $\bar{X} = 5.68$ ;  $SD = 4.44$ ),  $t = 5.856$ ;  $p = .000$ .

Finally, those who had attempted suicide experienced significantly higher levels of stress regarding Negative Life Events ( $\bar{X} = 16.95$ ;  $SD = 8.10$ ) than those who had not attempted suicide ( $\bar{X} = 11.60$ ;  $SD = 6.72$ ),  $t = 8.190$ ;  $p = .000$ .

The logistic regression analysis of social resources as predictors of adolescent suicide attempt will now be discussed.

### **5.3.3. Resources**

A logistic regression analysis was performed to predict the odds of an adolescent previously having attempted suicide, using the seven resources as predictors.

Firstly, the model needed to be tested to determine whether or not there was a significant difference between the complete model (with all the predictors) and the model with only the intercept. The  $\chi^2$ -value of 41.549 ( $df = 7$ ;  $n = 982$ ) was significant at the 1% -level of significance. Secondly, the Hosmer-Lemeshow test was performed.

A Chi-square value of 6.835 ( $df = 8$ ) was obtained, which is non-significant at the 5% -level ( $p = .555$ ) and, consequently, it could be accepted that the model was a suitable fit for the data. The model could be relied upon to correctly categorise 86.9% of the subjects. The resulting logistic regression coefficients, Wald test and odds ratio of each of the seven resources, are presented in Table 9. (p. 87).

**Table 9: Logistic regression predicting suicide attempt from resources**

Predictor variable Resources	B	Wald $\chi^2$	<i>p</i>	Odds ratio Exp(B)
Parents	-0.071	14.606	.000*	0.931
Siblings	0.008	0.211	.646	1.008
Extended Family	-0.020	1.899	.168	0.980
School	-0.006	0.109	.741	0.994
Friends	-0.009	0.508	.476	0.991
Boyfriend/Girlfriend	-0.051	12.327	.000*	0.951
Positive Life Events	-0.062	6.639	.010*	0.955

\* $p \leq 0.01$

Table 9 shows that the variables Parents, Boyfriend/Girlfriend and Positive Life Events had significant partial effect, at the 1% -level of significance. From the odds ratios, it can be concluded that:

- a one-point increase on the Parents scale as resource will increase the odds of attempting suicide with a multiplicative factor of 0.93;
- a one-point increase on the Boyfriend/Girlfriend scale as resource will increase the odds of attempting suicide with a multiplicative factor of 0.95; and
- a one-point increase on the Positive Life Events scale as resource will increase the odds of attempting suicide with a multiplicative factor of 0.96.

Next, a univariate analysis was conducted by performing *t*-tests for the independent groups, the results of which are shown in Table 10 (p. 88).

**Table 10: Univariate analysis for resources**

Predictor variable	Attempter		Non-attempter		<i>t</i>	<i>p</i>
	$\bar{X}$	SD	$\bar{X}$	SD		
Parents	8.33	4.97	10.36	6.04	-4.192	.000*
Boyfriend/Girlfriend	10.32	7.34	13.40	8.10	-4.366	.000*
Positive Life Events	11.19	4.15	12.25	4.63	-2.437	.015**

\* $p \leq .01$

\*\* $p \leq .05$

The results in Table 10 show that those who had attempted suicide experienced significantly lower resource levels regarding Parents ( $\bar{X} = 8.33$ ; SD = 4.97) than those who had not attempted suicide ( $\bar{X} = 10.36$ ; SD = 6.04),  $t = -4.192$ ;  $p = .000$ .

Those who had attempted suicide experienced significantly lower resource levels regarding Boyfriend/Girlfriend ( $\bar{X} = 10.32$ ; SD = 7.34) than those who had not attempted suicide ( $\bar{X} = 13.40$ ; SD = 8.10),  $t = -4.366$ ;  $p = .000$ .

Lastly, those who had attempted suicide experienced significantly lower resource levels regarding Positive Life Events ( $\bar{X} = 11.19$ ; SD = 4.15) than those who had not attempted suicide ( $\bar{X} = 12.25$ ; SD = 4.63),  $t = -2.437$ ;  $p = .015$ .

#### **5.4. Conclusion**

These findings show that, of the 1 033 adolescents surveyed, 129 (12.5%) had previously attempted suicide. Demographic attributes found to be significantly associated with suicide attempt are female gender and coloured race. Life stressors significantly associated with suicide attempt are stressors in

relationships with parents and extended family, stressors regarding home and finances, and experience of negative life events. Resources associated with the significantly reduced likelihood of attempting suicide are positive relationships with parents and with girlfriend/boyfriend, and experience of positive life events. These results will be discussed in the final chapter.

## **CHAPTER 6**

### **6. Discussion of Results and Conclusion**

#### **6.1. Introduction**

In this chapter, the main findings of the study are discussed with regard to the literature, followed by a discussion on the limitations of the study, recommendations for future research and the conclusion.

The aim of the study was to investigate the life stressors (risk factors) and social resources (protective factors), associated with attempted suicide among a sample of adolescents in the Free State Province of South Africa. Since the literature indicates that gender and race may play an important role in suicide attempt, these biographical aspects were also investigated in this study as predictor variables.

#### **6.2. Prevalence of suicide attempt**

Of the 1 033 adolescents surveyed, 129 (12.5%) had previously attempted suicide. While disconcerting, this rate is lower than that reported by Mashego and Madu (2009), who found that 14.8% of adolescents surveyed around the Welkom and Bethlehem areas in the Free State had previously attempted suicide. Reddy et al. (2010) reported that, in the Free State, 20.4% (n = 1 252) of adolescents had attempted suicide in the six months prior to the survey. The different suicide attempt rates for the Free State could be attributed in part to varying age ranges in the studies and various proportions of races represented in the samples. The lower rates in the current study are unexpected. The current study included older



adolescents in Grades 11 and 12 (17 to 24 years) while the study conducted by Reddy et al. (2010) included adolescents in Grades 8 to 11 (mostly 14 to 18 years), and Reddy et al. reported suicidal behaviours to be higher in older adolescents. Another reason for the lower rates being unexpected is that, in the study conducted by Reddy et al., adolescents were asked whether or not they had attempted suicide in the six months prior to the study whereas, in the current study, participants were asked whether or not they had ever previously attempted suicide. Nonetheless, the finding that well over 10% of adolescents had previously attempted suicide remains a cause for concern. Although only a small portion of those who attempt suicide ever complete it, attempted suicide has been identified as a risk factor for completed suicide and reflects high levels of psychological distress among adolescents (Fedorowicz & Fombonne, 2007; Walsh & Eggert, 2008).

### **6.3. Gender and suicide attempt**

Comparatively more females (18.1%) than males (5.9%) had attempted suicide. According to the results of the current study, being female is significantly associated with the increased likelihood of attempting suicide. This supports the global trend (Barlow & Durand, 2009; Bridge et al., 2006; WHO, 2010) as well as findings in a South African study (Joe et al., 2008) that females are at higher risk of attempting suicide than males.

Schlebusch et al. (2003) suggested that changes in gender roles, with the shift from traditional cultural identification to Western lifestyles, could be a factor influencing the suicidal behaviour displayed by women in South Africa, reflecting an interaction between gender and cultural transition. Furthermore, South Africa

has high levels of interpersonal violence and gender inequality (Burrows et al., 2007; Matthews et al., 2007) and these factors could also contribute to suicidal behaviour among women (Krug et al., 2002).

#### **6.4. Race and suicide attempt**

As far as the prevalence of suicide attempt among the various racial groups is concerned, this study found that comparatively more coloured adolescents (23.9%) had attempted suicide, followed by black adolescents (10.1%) and white adolescents (9.4%). In the current study, being coloured was significantly associated with the increased likelihood of attempting suicide.

Globally, suicide rates have been higher among white people and, overall, this is still the case, although there is also an increase in suicide among black people (Barlow & Durand, 2009; Bridge et al., 2006; Krug et al., 2002). The finding of the current study with regard to race, however, supports the finding of Reddy et al. (2010) that, of those adolescents who had attempted suicide in the six months prior to the study, the highest percentage according to race was coloured (25.2%). In the study conducted by Reddy et al. (2010), the racial group with the second highest attempted suicide rate was white (21.6%), followed by black (20.9%) and Indian (14.4%) adolescents. The current study found the highest attempted suicide rate to be among coloured adolescents (23.9%), followed by black (10.1%) and white adolescents (9.4%).

Similarly, Joe et al. (2008) found that members of the coloured population had the highest lifetime prevalence for attempted suicide. This could be attributed to socio-economic transition in South Africa, together with the loss of privileges

relative to black people and less opportunity for advancement than expected in the post-apartheid era (Joe et al., 2008). In the qualitative study conducted by Laubscher (2003) in which the suicides of 11 young successful, professional coloured men were examined, Laubscher highlights how a loss of a “sense of self-in-community” (2003, p. 141), which emanated from moving from a working-class background to professional status and individualism, could have contributed to the suicides.

### **6.5. Stressors and suicide attempt**

The findings of this study indicate that the stressors significantly associated with the increased likelihood of attempting suicide among adolescents are stressors in relationships with parents and extended family, as well as stressors regarding home, finances and experience of negative life events.

In the current study, stress between the adolescent and parents ( $B = 0.038$ ; Wald  $\chi^2 = 3.870$ ;  $p = .049$ ) was significantly associated with attempted suicide. Sharaf et al. (2009) found lower parental involvement to be associated with attempted suicide, while parent-child conflicts have been identified as an important risk factor for suicide in young adults (Bridge et al., 2006; Kölves, 2010).

Pillay and Wassenaar (1997) found that, among Indian adolescents in South Africa, of those who had engaged in suicidal behaviour, 77.5% had conflict with their parents hours before the event. Furthermore, suicidal subjects experienced significantly more family conflict than the control groups and also had significantly lower levels of family satisfaction (Pillay & Wassenaar, 1997). In a study conducted among youths in Cape Town, Gilreath et al. (2009) found maternal

closeness to be significantly (negatively) associated with suicidal ideation in young females, and with risk behaviour among young males. George (2005) also found a significant correlation between parents as a stressor and suicidal ideation among youths in the Northern Cape Province. In a study on suicide victims in the Transkei, Meel (2003) found that 17% had experienced family disputes and that 17% had been separated from a parent through divorce or separation.

It is interesting to note that, in the current study, as a stressor, the relationship between the adolescent and extended family ( $B = 0.063$ ; Wald  $\chi^2 = 7.214$ ;  $p = .007$ ), was significantly associated with the increased likelihood of attempting suicide. Extended family refers to relatives other than parents or siblings, and the stress could be caused by a specific situation, such as the death of a relative, moving away, becoming seriously ill, or by a discordant or abusive relationship with a relative. It is likely that the dynamic of the stressor would be similar to that with parents and siblings, especially in cases where the extended family members live with the adolescent or fulfil the role of a primary caregiver. The burden of HIV and other diseases in South Africa, together with poverty and poor access to health facilities, has resulted in children relying on extended family in the place of parents who may have passed away, who may be ill, or who may be working far away. Consequently, disruption in relationships with extended family may have the same detrimental effect as disruption in relationships with parents (Louw, Duncan, et al., 2007).

In the current study, the stressor Home and Money ( $B = 0.032$ ; Wald  $\chi^2 = 6.036$ ;  $p = .014$ ) was significantly associated with attempted suicide. Financial deprivation can have a marked impact on the family system, increasing stress experienced by

the adolescent in a number of ways (Kölves, 2010). Poverty may increase or exacerbate psychological disorders and substance abuse among parents, other family members and/or adolescents, resulting in increased conflict and the breakdown of family relationships (Kölves, 2010). A lack of money for food and other essentials also places the adolescent at risk of maltreatment and sexual abuse, with food or money being offered for sexual favours. Abuse is known to increase the risk of both attempted and completed suicide (Bridge et al., 2006; Dinwiddie et al., 2000; Louw, Duncan, et al., 2007).

Among South African youths in the Northern Cape Province, George (2005) found a positive, statistically significant correlation between the stressor Home and Money and suicidal ideation, while Basson (2008) found Home and Money to be one of the stressors most frequently reported, with black subjects citing Home and Money as a greater stressor than white groups. Financial hardship was also identified as the main reason for suicide in 87% of the cases investigated in the Transkei region of South Africa (Meel, 2003).

Financial hardship increases the vulnerability of adolescents to negligence or abuse, and to increased risk for harm through a lack of responsible adult supervision. This could result in an increased number and intensity of negative life events, - another stressor significantly associated with the increased likelihood of attempting suicide.

In the current study, the stressor Negative Life Events ( $B = 0.070$ ; Wald  $\chi^2 = 21.362$ ;  $p = .000$ ) was significantly associated with attempted suicide. A recent, large study ( $N = 109\ 377$ ), across 21 countries in Africa, the Americas, Asia and the Pacific, Europe and the Middle East, found that childhood adversities,

especially sexual and physical abuse, are powerful predictors of the onset and persistence of suicidal behaviours (Bruffaerts et al., 2010). Studies have shown that South African youths have higher scores for negative life experiences than American youths as reported by George (2009) and Moos and Moos (1994). This could be attributed to high crime and violence, as well as the socioeconomic challenges faced by South Africans (George, 2009). Negative life events are believed to further exert their influence through changing ongoing stressors and resources (Daniels & Moos, 1990), which, in turn, influence cognitive appraisal and the choice of coping strategies employed (Moos & Moos, 1994).

#### **6.6. Resources and suicide attempt**

This study identified the primary resources significantly associated with the reduced likelihood of attempting suicide as positive relationships with parents and with boyfriend/girlfriend, as well as experience of positive life events.

The current study shows that, as a resource, the adolescent's relationship with his or her parents ( $B = -0.071$ ; Wald  $\chi^2 = 14.606$ ;  $p = .000$ ) is significantly associated with the reduced likelihood of attempting suicide. Parents are an important source of social support for adolescents, and secure attachment with parents has been associated with high levels of self-esteem and self-efficacy (Sharaf et al., 2009), which protect the adolescent from suicidal behaviour. In a study conducted among youths in Cape Town, Gilreath et al. (2009) found that maternal closeness has been significantly (negatively) associated with suicidal ideation in young females, and with risk behaviour among young males. This suggests that interventions to enhance the well-being of adolescents need to include working on the improvement of the parent-adolescent relationship. Successful interventions

in the lives of youths and their parents can be expected to have a positive impact on future generations, since the youths themselves would be better equipped for parenting.

In the current study, as a resource, the relationship between the adolescent and his or her boyfriend/girlfriend ( $B = -0.051$ ; Wald  $\chi^2 = 12.327$ ;  $p = .000$ ), is significantly associated with the reduced likelihood of attempting suicide. Romantic relationships, alongside other relationships, play a role in the adolescent's development of identity, as well as his or her communication and social skills (Louw, Louw, et al., 2007). Interventions equipping adolescents with communication and problem-solving skills will aim to help them establish stable, mutually supportive relationships and ultimately, stable families in which to raise future generations. Steady relationships can provide opportunities for the development of valuable qualities such as openness, honesty and the ability to resolve conflict (Louw, Louw, et al., 2007).

In the current study, the resource Positive Life Events ( $B = -0.062$ ; Wald  $\chi^2 = 6.639$ ;  $p = .010$ ), is significantly associated with the reduced likelihood of attempting suicide. The positive life events assessed in this study included all six domains of resources, and focused predominantly on the quality of relationships in the life of the adolescent. The findings of this study show that good relationships with parents and boyfriends/girlfriends, together with positive life events in the relational and functional areas of life, significantly decrease the likelihood of attempting suicide. This highlights the importance of equipping the adolescent with the necessary relational skills and attitudes to navigate successfully through life.

This study has contributed towards knowledge of the prevalence of suicide attempt among adolescents in the Free State Province and has increased our understanding of the demographic and psychosocial risk and protective factors associated with suicide attempt, among adolescents in the Free State Province.

### **6.7. Limitations and recommendations**

Black adolescents were under-represented and white and coloured adolescents were over-represented in the sample, when compared with the distribution of race in the Free State in 2001 (Statistics SA, 2003) and when compared with the mid-year population estimates of race in South Africa for 2011 (Statistics SA, 2011). The under-representation of black adolescents in this study needs to be kept in mind as a limitation of the study when generalising the findings to the adolescent population of the Free State Province. It would be helpful if, in future research, the sample more closely represents the different racial and gender groups of the population under investigation.

The age of the participants ranged from 16 to 24 years (mean age 17.41), therefore representing older adolescents. Since adolescence is not defined by a fixed age, but rather spans from approximately 12 to 20 years of age, differences in ages should be kept in mind when comparing findings with other studies involving adolescents.

This was a cross-sectional study and measured previous suicide attempt, as well as previous and current stressors and resources. Consequently, although the life stressors and resources measured have been referred to as predictors of suicide attempt, a causal relationship cannot be assumed; the life stressors cannot be



assumed to have caused the suicide attempts. A further limitation in this regard is that the question as to whether or not adolescents had ever attempted suicide did not include a timeframe, while the life stressors and resources were measured over a period of twelve months prior to the study. A reported suicide attempt could have taken place many years prior to the measured stressors and resources. The inclusion of a time-frame needs to be considered when comparing the findings of studies. Longitudinal studies are needed in order to investigate the influence of life stressors and resources on future suicide attempts for the different gender, racial and economic groups among South African youths.

Other recommendations for further research include investigating the role of specific factors associated with attempted suicide among the different gender and racial groups, so that interventions can be better tailored to the needs of each group. It is recommended that future research studies include dispositional factors such as self-esteem and sense of coherence. Further research is needed to investigate the reasons for higher rates of attempted suicide among the coloured population, including the possible role of substance abuse and other factors which may be unique to this group (Joe et al., 2008). It would also be helpful to ask adolescents to provide their reasons for previous suicide attempts, and qualitative studies may enhance depth of understanding in this regard.

## **6.8. Conclusion and recommendations for practice**

In spite of the limitations, the findings of this study support some findings of other studies with regard to the female gender (Krug et al., 2002), the coloured group (Reddy et al. 2008) and the life stressors significantly associated with the increased likelihood of attempting suicide (Bruffaerts et al., 2010). The findings

outline the extent of the problem of suicide attempt among adolescents in the Free State and the significantly higher likelihood of attempting suicide among females and coloured adolescents.

The importance of gender equality, the empowerment of women and the reduction of violence against women and children for the prevention of suicide attempt, is supported. The significant association of stress regarding home and financial conditions with attempted suicide further emphasises the negative impact of economic hardship on the well-being of adolescents. With the high levels of unemployment in the Free State, especially among coloured and black racial groups, the importance of poverty alleviation efforts such as feeding schemes, access to child grants and employment creation cannot be underestimated.

Most importantly, the findings highlight the association of relationship stressors, particularly with parents and extended family, with attempted suicide. Conversely, these findings emphasise the protection provided by positive, supportive relationships, especially with parents and boyfriends/girlfriends. This demonstrates the importance of interventions to equip adolescents and their parents with the relational skills and attitudes needed to be mutually supportive and to resolve conflict collaboratively. The goal would be to promote a culture of self-respect and respect for others, regardless of gender, race, age and economic status.

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## ANNEXURE A

### LETTER TO PARTICIPANT AND INFORMED CONSENT

Dear Participant

Thank you for considering participation in this study. The purpose of this study is to determine the availability of resources and support systems to our youth when confronted by stressful events. Furthermore, this study aims to focus on how these factors contribute towards positive and healthy adolescent development.

Participation in this study is voluntary and any possible identifying data will be held in the strictest confidence. While the data obtained will be published, questionnaires will be completed anonymously. Should you wish to obtain individual feedback on your data, this will be available at your request.

Your participation in this study will serve to provide a better understanding of how certain factors can enhance or limit the healthy development of our youth who, ultimately, are our leaders of tomorrow. This study has the support and backing of the Free State Department of Education, as well as the University of the Free State. As previously stated, participation is entirely voluntary and, should you feel the need, you may withdraw from the study at any time.

Should you be willing to participate in this study, please complete the following:

Signature of Participant \_\_\_\_\_

Date \_\_\_\_\_

Should you have any queries or concerns, please feel free to contact me.

Sincerely

Name:

Department:

University:

City:

Tel: