Perceived Parenting Style and Suicidal/Non-Suicidal Self-Injury in Students at the University of Cape Town

by

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Declaration

I, Mwanja Chundu, hereby declare that the work on which this dissertation is based is my original work (except where acknowledgements indicate otherwise) and that neither the whole work nor any part of it has been, is being, or is to be submitted for another degree in this or any other university.

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Abstract

Background:

Low- and middle-income countries like South Africa carry the greatest suicide burden, with local general population suicide attempt rates of 2.9–22.7%, in comparison to 0.7–9% in international literature. Non-suicidal self-injury (NSSI) commonly co-occurs with suicidal behaviours and estimates range from 5.5% internationally to 19.4% in South Africa. As a subgroup of the general population, university students are at higher risk both of suicidal behaviours and NSSI (S/NSSI). Risk factors for S/NSSI include parenting style; however, very little is known about the relationship between parenting styles and S/NSSI in university students in the South African context.

Objectives:

In this dissertation we set out to perform a literature review relating to explanatory models and risk factors associated with S/NSSI and then proceeded to collect novel data from students at the University of Cape Town. This research study aimed to describe the rates of S/NSSI behaviours and to explore the relationship between the Baumrind parenting style typography and S/NSSI in university students. The study hypothesised that authoritative parenting would negatively correlate with S/NSSI. No *a priori* hypotheses were made about the other parenting styles investigated.

Methods:

In chapter 1, we performed a literature review of peer-reviewed publications on Pubmed, Psychinfo via EBSCOHost and MEDLINE via EBSCOHost identified through search terms that were relevant to the focus of the study. In chapter 2 novel data were collected. Students from all faculties at the University of Cape Town were invited to complete an anonymous, online electronic survey. Data collection included a socio-demographic questionnaire, Parenting Styles and Dimensions Questionnaire and Self-Harming Behaviours Questionnaire. Descriptive statistics quantified parenting styles, suicidal behaviours and NSSI. Spearman's correlation coefficients examined the association between parenting style and S/NSSI.

Results:

Literature review provided a topline review of explanatory models and risk factors associated with S/NSSI and identified relevant literature about parenting styles using the Baumrind

typology. In the electronic survey of university students, the rate of suicidal attempts was 6.3% and of NSSI was 22.7%. Suicide threats, suicidal thoughts, and thoughts of dying were reported by 5.9%, 35.7% and 50.7% respectively. No significant differences were seen between male and female students. We observed no significant association between authoritative parenting and suicidal behaviours, but authoritative mothers and fathers were significantly associated with a history of NSSI. Both permissive mothers and fathers were associated with suicide attempts, threats, and thoughts, whereas only permissive mothers were associated with NSSI.

Conclusion:

This study replicated previously reported high rates of S/NSSI in South African university students in comparison to general population and international data. Contrary to our hypothesis, authoritative parenting style was positively correlated with NSSI, but not with suicidal behaviours. Further studies are warranted to examine parenting style, and permissive parenting, in particular, in relation to S/NSSI.

Acknowledgements and Contributions

This research is based on data gathered during a Special Study Module (SSM) research module for sixth-year medical students at the University of Cape Town.

The SSM study was approved by the Human Research Ethics Committee, Faculty of Health Sciences, University of Cape Town (HREC Reference: 420/2016) and permission was granted by the institution's Department of Student Affairs. In addition, the protocol for this dissertation was presented and reviewed in the Department of Psychiatry and Mental Health, and approved by the Human Research Ethics Committee, Faculty of Health Sciences, University of Cape Town (HREC Reference: 556/2016).

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Authors' contributions

MC – Conceptualised the idea, led protocol development, data analysis and interpretation, and drafting and preparation of the manuscript.

ED – Contributed to the conceptualisation of the idea, led data collection, contributed to protocol development, data analysis and interpretation, and drafting of the manuscript.

PJdV – Contributed to the conceptualisation of the idea, protocol development, data interpretation, and drafting and revision of the manuscript.

All authors read and approved the final manuscript.

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List of Abbreviations

NSSI - Non-Suicidal Self-Injury

S/NSSI - Suicidal and Non-Suicidal Self-Injury

LMIC - Low- and Middle-Income Countries

PSDQ - Parenting Styles Dimensions Questionnaire

SHBQ - Self-Harming Behaviours Questionnaire

HREC - Human Research and Ethics Committee

Chapter 1 Introduction and Literature Review

Introduction

Suicide is the second leading cause of death in the 15–29 year age group globally, accounting for 8.5% of deaths [1,2]. In Africa, the years between 2000 and 2012 saw a 38% increase in suicide rates [1], with the highest rates among youth and adults aged 15–30 [3]. South Africa has also seen a gradual increase in suicide rates over time, with the highest rates among 18–34-year-olds followed by the 15–24 year age group [4,5].

In contrast to suicidal behaviour, non-suicidal self-injury (NSSI) is a term used to describe behaviours involving deliberate, self-directed bodily harm or mutilation without the intent to die [6-8]. Suicidal behaviours and NSSI (S/NSSI) frequently co-occur, with a clear relationship between NSSI and future suicide attempts [6-8] and future completed suicide [8].

Suicidal ideation and suicidal attempts occur at higher rates among students than in the general population [9], placing this population at increased risk for suicide. The literature reports prevalence rates of 2% for suicide attempts in students [10]. This contrasts with a global prevalence ranging from 0.4–5.8% for suicide attempts in individuals aged 18 years old and older [1]. A recent review estimated a prevalence rate of 9.2–10% for suicidal ideation among university students internationally [10,11]. In contrast, suicidal ideation was endorsed by 32.3% of medical students surveyed at three medical schools in South Africa [12], compared to 9.1% in the general South African population [5]. NSSI behaviours follow a similar trend, with international literature reporting rates for NSSI of 5.5% in adolescents [13] and between 3.3% (one-year prevalence) [14] and 14.3–43.99% lifetime prevalence in students [15,16]. In South Africa, rates of NSSI in the student population have been reported to be 19.4% [17].

Given that students are at increased risk of S/NSSI behaviours, it is important to identify factors associated with and mechanisms underlying this risk. Bronfenbrenner's ecological model provides a useful framework for understanding the factors contributing to suicidal behaviours and NSSI in students. This model posits that human development is the outcome of two broad processes: the interaction between the individual's characteristics and their immediate environment, including family and peer interactions (proximal processes), and more distal processes involving the interaction between the individual and broader society (see Figure 1) [18]. Behavioural outcomes, such as S/NSSI, can thus be understood to be a consequence of these interactions. The family environment, as a proximal process, is associated with various

behavioural outcomes in adolescents and youth. These include suicidal behaviours and NSSI, with family dysfunction often preceding these behaviours [19].

Purpose

The purpose of this literature review is to explore factors contributing to S/NSSI behaviours in students. Broadly, the review will explore explanatory models describing the genesis of suicidal behaviours and NSSI. Using Bronfenbrenner's ecological model as a theoretical framework, this review will explore the role that the university and family environment, and specifically parenting style, play in the genesis of suicidal and non-suicidal self-injurious behaviours in this population.

Objectives

1. Explore explanatory models of suicidal and non-suicidal self-injurious behaviours
2. Describe Bronfenbrenner's ecological model of development
3. Review the literature on suicidal and NSSI (S/NSSI) behaviours in general population and university students
4. Explore the role of the family environment, particularly parenting style, in influencing developmental outcomes, with a focus on S/NSSI behaviours
5. Applying Bronfenbrenner's ecological model to explore the relationship between parenting style, and suicidal and NSSI behaviours in students

Literature search strategy

The search included the following databases: Pubmed, Psychinfo via EBSCOHost and MEDLINE via EBSCOHost. The following MeSH terms were used: 'Self-injurious behavior', 'Suicide Attempted', 'Suicide', 'Young Adult', 'Adolescent', 'Adolescent Behavior', 'Students', 'Parenting', 'Family Relations', 'Ecological and Environmental Phenomena/ growth and development'. Combinations of different permutations of these terms were entered as searches to answer each of the above objectives. Several de novo search terms were used, including: 'Ecological Framework Theory', 'Bronfenbrenner ecological system', 'Parenting styles', 'Baumrind' and 'Suicide in South Africa'. Abstracts were selected based on their

relevance in addressing the literature review's objectives. The articles also had to be published in the English language. The selected abstracts' full articles were retrieved. The full articles were further scrutinised to determine whether they met the objectives of this review. In addition, the reference lists of retrieved articles were used to source further relevant literature.

Suicide and NSSI: explanatory models

Several explanatory models have been proposed to conceptualise the relationship between suicidal and non-suicidal self-injurious behaviours (S/NSSI) and to explain the reasons why individuals may engage in S/NSSI behaviours.

The first model, the Gateway Theory, proposes NSSI as a gateway leading to suicidal behaviour and is supported by the finding that NSSI often precedes suicidal behaviour [7,19]. The second model, the Third Variable Theory, proposes that a third variable acts to increase the risk of both NSSI and suicidal behaviours, e.g. borderline personality disorder is associated with an increased risk of both suicidal behaviours and NSSI [19]. The third model, Joiner's Theory, proposes that engaging in NSSI results in physiological changes that lead to increased pain tolerance, which in turn leads to decreased fear of pain or death and the acquired capacity for suicide [20].

Hamza et al. [7] proposed an integrated model incorporating all the above models. In their model, they predicted that NSSI will directly predict suicidal behaviours, and that this relationship will be influenced by intrapersonal distress with shared risk factors predicting both NSSI and suicidal behaviours. NSSI will contribute to an acquired capacity for suicidal behaviour, and this capacity will be influenced by NSSI severity. The relationship between acquired capacity for suicide and suicidal behaviour will be moderated by perceived burdensomeness and thwarted belongingness.

Blasco-Fontecilla et al. [21] proposed that both suicidal behaviours and NSSI were addictive behaviours with underlying neurobiological (mainly involving the brain's reward centre and pain modulating circuits) and psychological (involving sensitisation to self-harming thoughts as a response to stressors) mechanisms to explain the addictive quality of these behaviours.

Applying an environmental systems approach to NSSI, Suyemoto [22] conceptualised NSSI as a behaviour with both internal (e.g. release of inner tension) and environmental (e.g. receiving attention from others) reinforcements, with the behaviour itself creating homeostasis in

dysfunctional family systems. This observation underlines the potential importance of a systems approach, specifically the ecological model of development, to explore the relationship between parenting style and S/NSSI behaviours in students.

The ecological model of development

The ecological model of development proposes that to understand human development, it is important to consider the processes and conditions present throughout an individual's life course. The model describes human development as an interplay between two simultaneous processes (see Figure 1-1):

1. Proximal processes, which are the enduring patterns of interaction between an individual and persons or objects in their immediate environment, e.g. parent-child interaction, child-child interaction or learning new skills.
2. The interaction between the characteristics of the individual, their immediate environment, and the nature of the developmental outcome of interest [18].

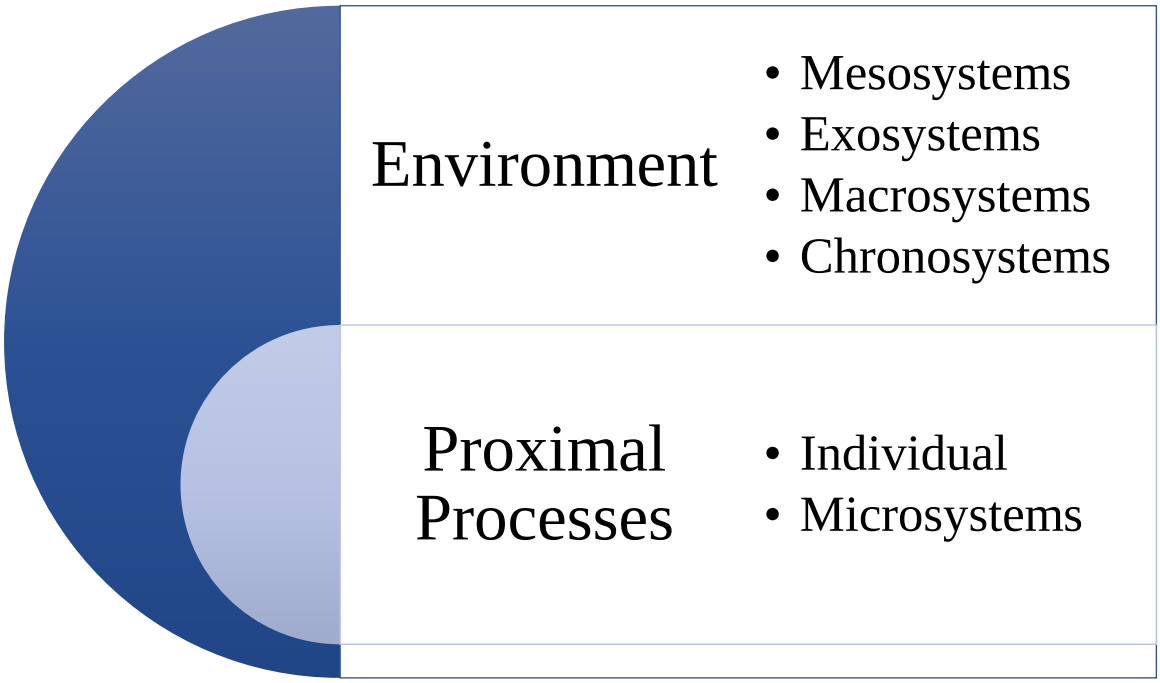

Figure 1-1. The Bronfenbrenner ecological model of development

In Bronfenbrenner's ecological model [18], he proposed five socially organised subsystems that have reciprocal relationships governing their effect on human development (see Figure 1.2).

These include:

1. Microsystems: an individuals' interaction with physical, social, and symbolic features of their immediate environments, e.g. family, peer or school group
2. Mesosystems: the interactions between two or more settings containing the developing individual, e.g. school-home or school-workplace interaction
3. Exosystems: the interaction between two or more settings, one of which does not contain the developing individual but influences their development, e.g. parent's workplace, family social networks and neighbourhood-community contexts
4. Macrosystems: the specific pattern of beliefs, bodies of knowledge, resources, customs and hazards characteristic of a culture or subculture that makes up micro-, meso- and exosystems of that culture
5. Chronosystems: concerned with the change or consistency in an individual and their environment over time; encompassing the influence of historical phenomena on the development of an individual (e.g. comparing developmental outcomes in children and adolescents exposed to economic deprivation during the Great Depression to those not similarly deprived).

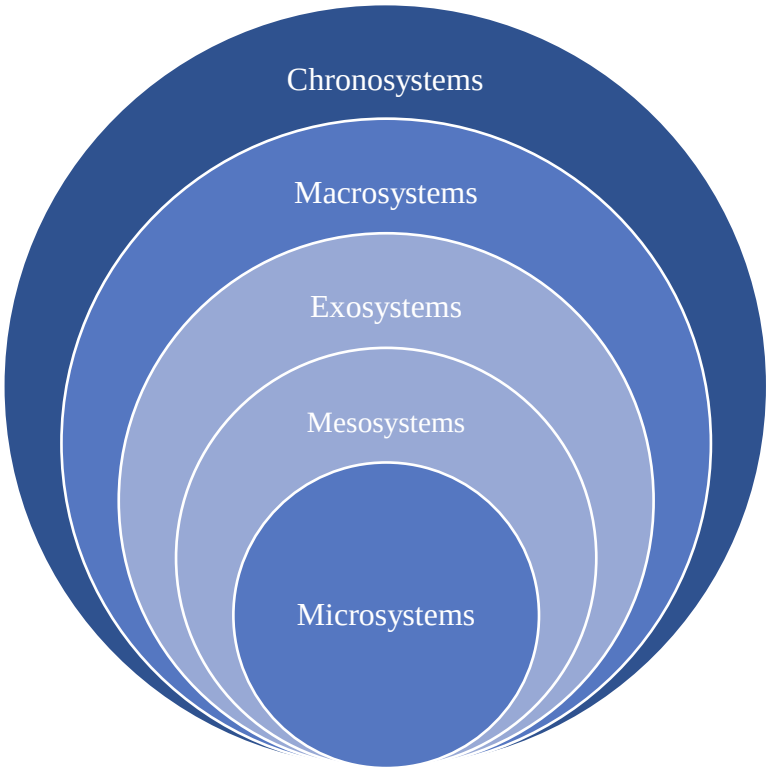

Figure 1-2. A diagrammatic representation of the hierarchical structure of the ecological model

Application of the ecological model to suicidal and NSSI behaviours in university students

Using this model, suicidal and self-harming behaviour can be conceptualised as interacting across multiple levels in the ecological model (see Figure 1-3). At the centre of this system lies the individual student with their unique set of behavioural characteristics and genetic vulnerability to developing mental illness. For most students, the university years coincide with the end of adolescence and beginning of adulthood, as socially and legally defined. However, there is increasing recognition that this developmental stage of 'emerging adulthood' is more complex than traditionally defined. While students face increasing pressures to take on adult roles, including the pursuit of education and a career, much of their experiences are still shaped by the social role transitions and biological growth processes that traditionally define adolescence [23]. Brain development studies show that maturity of executive function and affect regulatory systems continues into the second decade of life [23], highlighting the psychological vulnerability that students in their early twenties continue to experience despite assumptions that they are fully mature adults.

At the immediate, or microsystem level, students continue to depend on their families for both psychosocial and financial support as they prepare to enter the formal workforce. They remain vulnerable to the influences of their parental and family environments psychologically and materially.

At the mesosystem level, the university environment places additional pressure on the family and individual systems. Students often face competing pressures for their time and resources from the family and university environment, particularly where the family environment is impoverished or otherwise dysfunctional. The result is the university environment working synergistically with family and individual risk factors to produce suicidal and NSSI behaviours in the individual student. More distally, socio-political and cultural characteristics of the broader society influence both the family and university environments, and may play a contributory role in the development of suicidal and NSSI behaviours. Exploring these interactions begins with understanding the individual and environmental characteristics predisposing students to suicidal behaviour and NSSI.

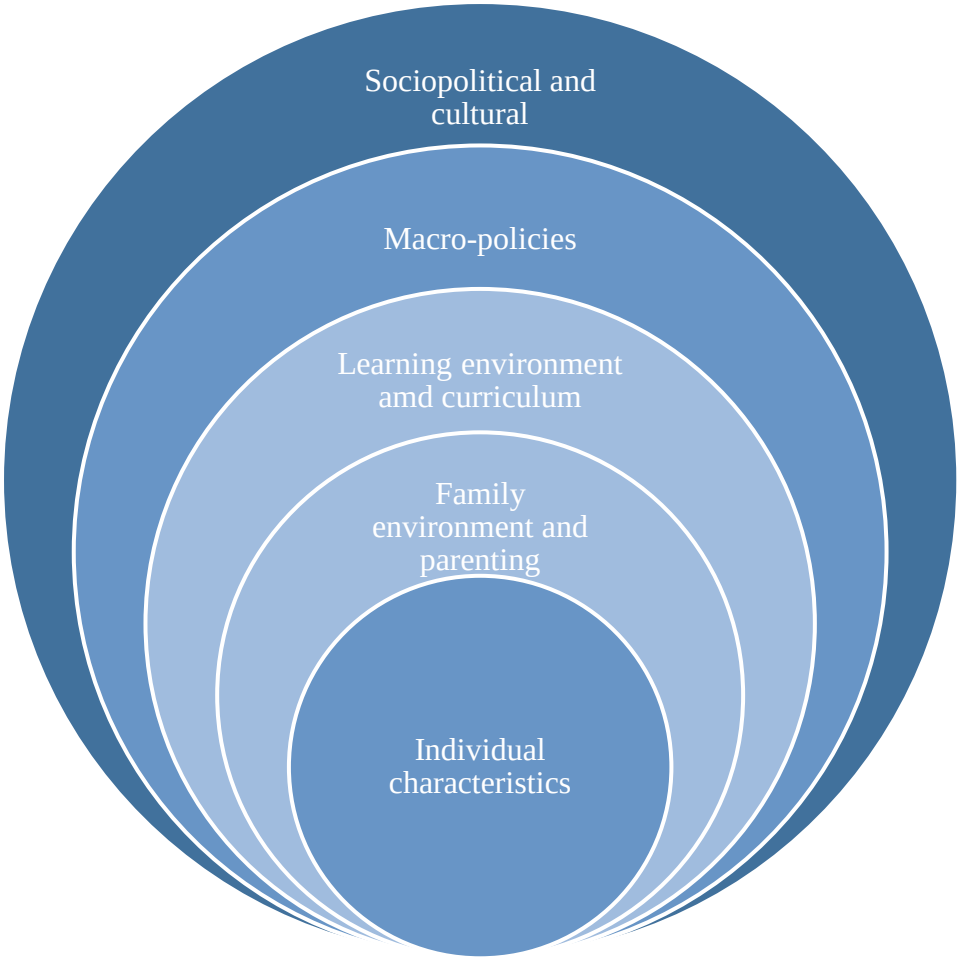

Figure 1-3. A diagrammatic representation of the ecological model as applied to students

Risk factors associated with suicide and NSSI

For the purposes of this review and in keeping with Bronfenbrenner's ecological model, the risk factors discussed below will address issues in the microsystems, mesosystems and exosystems. Individual risk factors will refer to processes in the microsystem, while the meso- and exosystems will be discussed under the umbrella-term 'environmental factors'.

Individual factors

Broadly speaking, suicidal behaviours and NSSI share common risk factors. However, unlike suicide, the intention behind NSSI is not to kill oneself. Instead, the motives for NSSI include self-punishment, an attempt to seek attention from others or exerting interpersonal influence, a method of inducing guilt in others, or as an attempt to fit in with self-injuring peers [6,8,24]. However, some reasons for NSSI involve the seeking of more positive outcomes including the

temporary release of intense feelings of psychological distress, to achieve a sense of self-mastery, and an attempt to experience self-validation [24].

Like their international peers, South African adolescents cited the relief of psychological distress as the main reason for engaging in NSSI [25]. However, the local literature reports differences in risk factors for S/NSSI behaviours. In South African studies, males were more likely to report S/NSSI behaviours, and the experience of physical and sexual violence became more important risk factors [4,26].

There are several individual characteristics that contribute to the development of S/NSSI which will be discussed in this section. To begin with, there is a well-documented gender difference in suicidal behaviours, with women more likely to attempt suicide and engage in NSSI than men, and men more likely to succeed in their attempts than women [7,20,27]. A study of Korean adolescents found sex-related differences in risk factors for suicidal behaviours, as males engaging in suicidal behaviours were more likely to report substance use and feelings of hopelessness. In contrast, females were more likely to report low academic achievement, poor health, and high stress as co-occurring with their suicidal behaviours [28].

As expected, mental health problems bear a significant relationship to S/NSSI. Having an underlying psychiatric or psychological disorder such as depression has consistently been shown to precede S/NSSI behaviours [27,29]. A history of a previous suicide attempt and previous or current NSSI often precedes S/NSSI behaviours [29]. In addition, the co-occurrence of NSSI and suicidal ideation is associated with a greater probability of past and future suicide attempts [30].

Other individual characteristics involve maladjusted behaviours. Alcohol and substance abuse are frequently cited as a risk factor for S/NSSI behaviours [27,28]. Truancy in adolescence [27] and the utilisation of poor coping strategies [28] may co-occur with S/NSSI behaviours. Lastly, poor health may lead to S/NSSI behaviours, particularly in the female population [28].

Environmental factors

The literature on S/NSSI includes research into the environmental factors leading to S/NSSI behaviours. Among these are unemployment, social isolation, and the presence of family conflict [6,20,31]. Other factors include low maternal education [29], coming from an immigrant background [27], the presence of life stressors [32], and unemployment in persons of productive age [6,20,31]. South African literature follows a similar pattern, with lack of

social support, negative feelings towards the family and unemployment all cited as correlates of suicidal behaviours [4,26]. Perceived social support from family was associated with lower risk of suicide in the South African population [11].

This list of environmental factors is by no means exhaustive. However, as the focus of this review is about the effect of parenting on S/NSSI behaviours, the family related risk factors for S/NSSI will be discussed in more detail below.

Factors predisposing university students to suicidal and NSSI behaviours

Having explored the general risk factors for S/NSSI behaviours, this review will further probe the individual and environmental risk factors unique to the student population that contribute to the genesis of S/NSSI behaviours.

Individual factors

Like their non-student counterparts, the presence of mental disorder or distress, co-occurring health problems, substance abuse and a history of previous attempts are all associated with the presence of S/NSSI behaviours [10,32-36]. Past or current history of receiving psychopharmacological treatment is associated with a higher likelihood of endorsing suicidal behaviours [37]. This suggests that students with more severe mental conditions have a greater predisposition to engage in S/NSSI behaviours.

S/NSSI behaviours are reportedly associated with a greater likelihood of engaging in risky behaviours [17], likely because risky behaviour is associated with several mental health disorders, e.g. borderline personality disorder.

In some studies, the presence of an eating disorder was found to be significantly associated with S/NSSI behaviours [14,35]. Younger age is consistently reported as a correlate of S/NSSI behaviours [14,33,34].

Of concern is the correlation found between current suicidal ideation and decreased ability to observe experience or, in other words, be mindful [36]. This concern arises from the fact that therapies that include the practice of mindfulness is a useful tool for managing S/NSSI behaviours, particularly in persons with borderline personality disorder [38].

Sex and gender also play a role in the genesis of S/NSSI behaviours in university students. Females were more likely to engage in S/NSSI behaviours [34] while males reported higher

levels of suicidal intention [35]. However, in their study of Canadian students, Daly and Willoughby [16] found that males engaged in more NSSI behaviours than females. They also found that in females NSSI behaviours were associated with the development of more self-criticism over time [16]. Transgender women were reportedly more likely to engage in S/NSSI behaviours than their cisgendered counterparts [32]. Moreover, students with a non-heterosexual orientation were identified as being at greater risk of S/NSSI behaviours than their heterosexual counterparts [14,32]. Bisexual students were particularly vulnerable, with this subgroup more likely to report having a mental health diagnosis and engaging in S/NSSI behaviours than their heterosexual, homosexual and transgender counterparts [32].

Several studies cited the presence of poor physical health as another factor associated with NSSI behaviours [37,39]. This association was particularly marked in female students [28]. Conversely, students engaging in self-compassionate and wellness behaviours reported having fewer depressive symptoms and lower rates of suicidal behaviours [40]. In addition, the presence of meaning of life was found to be protective against S/NSSI behaviours [41].

Environmental factors

As postulated by Bronfenbrenner's ecological model, there may be circumstances present in students' environments that correlate with the presence of S/NSSI behaviours. These factors include social, academic, socio-economic, and childhood environment.

The presence of early trauma has been associated with S/NSSI behaviours in students. Emotional abuse, in particular, has been associated with increased odds of engaging in suicidal ideation and attempt [39]. Being an only child is another childhood-related factor associated with an increased risk of S/NSSI behaviours [34].

Factors specific to the academic environment involve problems with academic performance and attitudes to achievement. Poor grades and academic stress are well described as factors associated with S/NSSI behaviours [13,33,35]. This relationship was particularly marked in departments with higher grade averages, suggesting that a more competitive academic environment may have a greater impact on S/NSSI behaviours [13]. Some studies found discrepancies between the sexes, with females more likely to endorse low academic performance and high stress levels as factors associated with their S/NSSI behaviours [28,35].

Beyond academic factors, several socio-economic factors have been found to have an association with S/NSSI behaviours. Social isolation and single relationship status both

correlate with S/NSSI behaviours [33,35,42]. This relationship is likely bi-directional as social isolation may both be a cause and a consequence of mental distress. Students endorsing poor family socio-economic circumstances or having parents with unstable employment have a higher prevalence of S/NSSI behaviours [34,39]. Perhaps related to this finding is the association between poor treatment utilisation and S/NSSI behaviours as affordability may be a factor contributing to this lack of utilisation [10], with stigma being another possible reason.

Family environment, parenting style and S/NSSI behaviours

Having explored some individual and environmental factors associated with S/NSSI behaviours, a further study of family and parental factors correlating with these behaviours is necessary to fulfil the objectives of this review. These factors include the general family environment, general parenting behaviours and specific parenting styles.

Dysfunctional family environments are generally associated with negative outcomes in adolescents and youth. These environments are characterised by the presence of emotional or physical neglect, disrupted attachments, and poor overall attachment [43]. Adolescents reporting negative family interactions have been found to score higher on depression scores [44]. Individuals raised in family environments characterised by unresolved attachment and the presence of physical and/or sexual abuse are more likely to engage in S/NSSI behaviours [43]. Conflicts in the family environment can be triggers for NSSI in adolescent females [45], while parental separations may lead to suicidal ideation in both male and female adolescents [27]. Sharaf et al. [29] found a correlation between low maternal education and higher reported suicidal ideation.

The literature on parenting uses various terms to describe parenting behaviours. According to Hoeve et al. [46], parenting can be understood in terms of discrete parenting behaviours, parenting dimensions, and parenting styles. Discrete parenting behaviours described in the literature include parental affection or hostility, level of parental monitoring, failed protection, overprotection, and poor communication [46,47].

Parenting dimensions conceptualise parenting behaviours as existing on two dimensions, viz. support and control. The control dimension can further be divided into behavioural (rule setting and monitoring) and psychological (love withdrawal, keeping child dependent and use of guilt) control. Positive control is referred to as authoritative control while negative control is referred

to as authoritarian control. Similarly, positive support involves warm, responsive, and accepting behaviours while negative support may be characterised by rejecting behaviours [46].

Parenting styles conceptualise parenting behaviours as existing on a two-dimensional framework of support (warmth and responsiveness) and control (demandingness) [48-50]. Using this two-dimensional framework, the Baumrind typology classifies parenting styles as permissive, authoritative, neglectful, and authoritarian [46,50], reflecting the various cross-dimensional permutations of positive and negative styles of support and control.

Permissive parents are non-punitive and use high warmth/responsiveness, and low demandingness/control in their interaction with their children [49]. In contrast, authoritative parents are controlling and demanding in a "rational, issue-oriented" manner [51], but also display high warmth/responsiveness [52]. Authoritarian parents are detached and controlling, while simultaneously displaying low warmth/responsiveness [49,50]. The neglectful parent employs a style of low warmth/responsiveness and low demandingness/control [52].

Parenting factors in general have been found to be important determinants of developmental outcomes in adolescents and young adults including psychological, health and behavioural outcomes, [53]. Understanding these factors requires reviewing the behavioural, dimensional, and stylistic parental behaviours and their related outcomes.

Several parental behaviours have been associated with both positive and negative behavioural outcomes. Maternal neglect has been associated with younger age of onset of substance use [54], while overall parental neglect or hostility has been associated with greater suicidal intent and increased risk of delinquent behaviour in adolescents [29,46]. Individuals who experienced more fear and alienation, and less communication and trust in their relationship with their parents are more likely to engage in NSSI behaviour [47]. Conversely, high parental care is associated with lowered risk of S/NSSI behaviours [43].

The literature describes several parenting dimensions associated with behavioural outcomes, including S/NSSI behaviours. The presence of greater parental psychological control and negative aspects of support, such as low parental acceptance and care, is associated with delinquency in adolescence [46]. Specific parental dimensions associated with suicidal behaviour and NSSI include parental affectionless control and low maternal warmth [47,55]. However, maternal authoritative control in adolescence and parental warmth in childhood are associated with decreased risk of suicidal behaviours [27] and lower depression scores [44].

Regarding parenting styles, authoritarian parenting has been linked to decreased psychological flexibility in older and younger adolescents, while authoritative parenting positively correlates with psychological flexibility [56].

Adolescent decision-making capacity is positively influenced by authoritative parenting style, with this parenting style providing the direction and limit-setting necessary for developing a capacity for mature decision-making [57]. In addition, authoritative parenting was found to be protective against S/NSSI behaviours in adolescents [27,58].

Maternal authoritarian, permissive and neglectful parenting styles, as well as paternal authoritarian parenting, have all been correlated with cigarette smoking in adolescents [59] and risk behaviours [60]. Local data supports this finding, with Roman et al. [61] finding that authoritative parenting is associated with positive psychological outcomes in South African adolescents.

Family environment, parenting style and S/NSSI behaviours in university students

Research conducted on student populations show results consistent with the above patterns of family and parenting factors and their relationship to various behavioural outcomes. In their study of Chinese students, Zhai et al. [34] showed that students endorsing suicidal ideation were more likely to report having poor family structures and relationships, as well as unstable parental employment. Poor family relationships have been cited as reasons for suicide attempts in students hospitalised following a suicide attempt [35]. Parental behaviours correlating with S/NSSI behaviours in students include a continuously cold and uncaring parental attitude [39] and experiencing of improper parenting styles, e.g. being scolded and beaten by parents or being pressured to achieve academically [34].

A Japanese study examining parenting dimensions that contribute to dysfunctional attitudes to academic achievement found that paternal affectionless control was associated with higher achievement scores in males. Similarly, maternal affectionless control was associated with higher achievement scores in females [62].

This review did not find literature specifically examining parenting styles and their relationship to behavioural or health outcomes in university students or in a South African setting. This

confirms the need for further research into parenting styles in this population and underpins the relevance of this review to the research study presented in chapter 2.

Conclusion

This review sought to examine S/NSSI behaviours in students by firstly exploring various explanatory models of these behaviours with a particular focus on Bronfenbrenner's ecological model of development. Using this model, we explored risk factors for S/NSSI behaviours as well as the role of family environment and parenting styles in behavioural outcomes in offspring. Finally, we explored the relationship between family environment and parenting, and S/NSSI behaviours both in general and in students specifically.

This review highlighted that a range of individual and environmental factors across micro-, meso-, macro- and chrono-related dimensions may contribute to the rates and likelihood of S/NSSI behaviours in university students. A particular level of interest was that of the family environment and parenting styles. Based on the ecological model presented, the existing literature suggested that parenting styles made significant contributions to many health-related behaviours in adolescents and young adults. However, little research to date has explored the relationship between S/NSSI in South African university students and parenting style. If parenting styles were to show clear associations with S/NSSI in university students in South Africa, these findings may point to strengthening of parenting styles and parent-child interactions in childhood and adolescence as a potential preventative intervention in relation to S/NSSI in the local context.

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Chapter 2 Publication-Ready Manuscript

Perceived Parenting Style and Suicidal/Non-Suicidal Self-Injury in University Students: A Cross-Sectional South African Study

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Abstract

Background:

Low- and middle-income countries like South Africa carry the greatest suicide burden, with local general population suicide attempt rates of 2.9–22.7%, in comparison to 0.7–9% in international literature. Non-suicidal self-injury (NSSI) commonly co-occurs with suicidal behaviours and estimates range from 5.5% internationally to 19.4% in South Africa. As a subgroup of the general population, university students are at higher risk for both suicidal behaviours and NSSI (S/NSSI). Risk factors for S/NSSI include parenting style; however, very little is known about the relationship between parenting styles and S/NSSI in university students in the South African context.

Objectives:

This study aimed to describe the rates of S/NSSI behaviours and to explore the relationship between the Baumrind parenting style typography and S/NSSI in university students. The study hypothesised that authoritative parenting would negatively correlate with S/NSSI. No *a priori* hypotheses were made about the other parenting styles investigated.

Methods:

Students from all faculties at the University of Cape Town were invited to complete an anonymous, online electronic survey. Data collection included a socio-demographic questionnaire, Parenting Styles and Dimensions Questionnaire and Self-Harming Behaviours Questionnaire. Descriptive statistics quantified parenting styles, suicidal behaviours and NSSI. Spearman's correlation coefficients examined the association between parenting style and S/NSSI.

Results:

The rate of suicidal attempts was 6.3% and of NSSI was 22.7%. Suicide threats, suicidal thoughts, and thoughts of dying were reported by 5.9%, 35.7% and 50.7% respectively. No significant differences were seen between male and female students. We observed no significant association between authoritative parenting and suicidal behaviours, but authoritative mothers and fathers were significantly associated with a history of NSSI. Both permissive mothers and fathers were associated with suicide attempts, threats, and thoughts, whereas only permissive mothers were associated with NSSI.

Conclusion:

This study replicates previously reported high rates of S/NSSI in South African university students in comparison to general population and international data. Contrary to our hypothesis, authoritative parenting style was positively correlated with NSSI, but not with suicidal behaviours. Further studies are warranted to examine parenting style, and permissive parenting, in particular, in relation to S/NSSI.

Keywords:

suicide, non-suicidal self-injury, parenting, parenting style, undergraduate, youth mental health, Africa

Introduction

Suicide is the second leading cause of death in the 15- to 29-year age group globally, accounting for 8.5% of deaths [1,2]. An estimated 75% of worldwide deaths by suicide occur in low- and middle-income countries (LMIC) [1,3]. The years between 2000 and 2012 saw a 38% increase in suicide rates in Africa [1]. The highest rates of suicide in Africa are seen in adolescents and young adults aged 15–30 years [4]. South African data mirror other African findings, with local data showing a gradual increase in suicide rates over the last number of years. Current estimates attribute 11% of South African deaths in all age groups to suicide [5]. A study in Durban, South Africa, showed suicide rates to be highest amongst 25- to 34-year-olds, followed by 15- to 24-year-olds [5], while the population-wide South African Stress and Health (SASH) study found the highest rates of suicidal behaviours in the 18- to 34-year age group [6]. Rates of suicide attempts in South Africa have been reported as 2.9% for all adults [6] and 22.7% for adolescents [7].

In contrast to suicidal behaviour, non-suicidal self-injury (NSSI) is a term used to describe behaviours involving deliberate, self-directed bodily harm or mutilation without the intent to die [8-10]. The international literature reports rates for NSSI of 5.5% in adolescents and between 3.3% one-year prevalence [11] and 14.3–43.9% lifetime prevalence in young adults [12,13].

Suicidal behaviours and NSSI frequently co-occur, with a clear relationship between NSSI and future suicide attempts [8-10] as well as future completed suicide [10]. Suicidal behaviours and NSSI also share common risk factors, including the presence of mental disorders, a history of previous suicide attempts, unemployment, social isolation, family conflict or dysfunction, and the presence of physical illness [8,14,15].

It is of interest that suicide attempts typically occur at higher rates among university students than in the general population [16], placing this population at particular risk for suicide. For example, the literature reports prevalence rates of 2% for suicide attempts in university students [17], and at the higher end of the global prevalence range of 0.4–5.8% in all individuals aged 18 years old and older [1]. Suicidal ideation was estimated at 9.2–10% among students [17,18], in contrast to 14.3% in the general population [11]. In South Africa, rates of NSSI in the student population were previously estimated at 19.4% [19].

Understanding Risk Factors for Suicide and Non-Suicidal Self-Injury

With S/NSSI clearly acknowledged as important causes of morbidity and mortality among youth in LMICs, such as South Africa, it is important to identify factors associated with and mechanisms underlying this risk. Bronfenbrenner's ecological model provides a useful framework to understand some of the factors contributing to suicidal behaviours and NSSI in university students. This model posits that human development is the outcome of two broad processes: the interaction between the individual's characteristics and their immediate environment, including family and peer interactions (proximal processes), and more distal processes involving the interaction between the individual and broader society (see Figure 2-1) [20]. Behavioural outcomes, such as S/NSSI, can thus be understood to be a consequence of these interactions. Individual characteristics (e.g. age) interact with factors present in the individual's immediate environment (e.g. family environment) in the genesis of S/NSSI.

Although typically considered adults as most students are usually in their late teens and early twenties when commencing their studies, students in the 18 – 24-year-old age group can be considered adolescents insofar as they continue to experience biological (brain) growth and navigate role transitions typically attributed to the adolescent experience [21]. Many remain psychologically and materially dependent on their families as they pursue higher education. Exploring these individual/family associations begins with understanding the individual characteristics predisposing students to S/NSSI and how these interact with family factors in the genesis of S/NSSI behaviours.

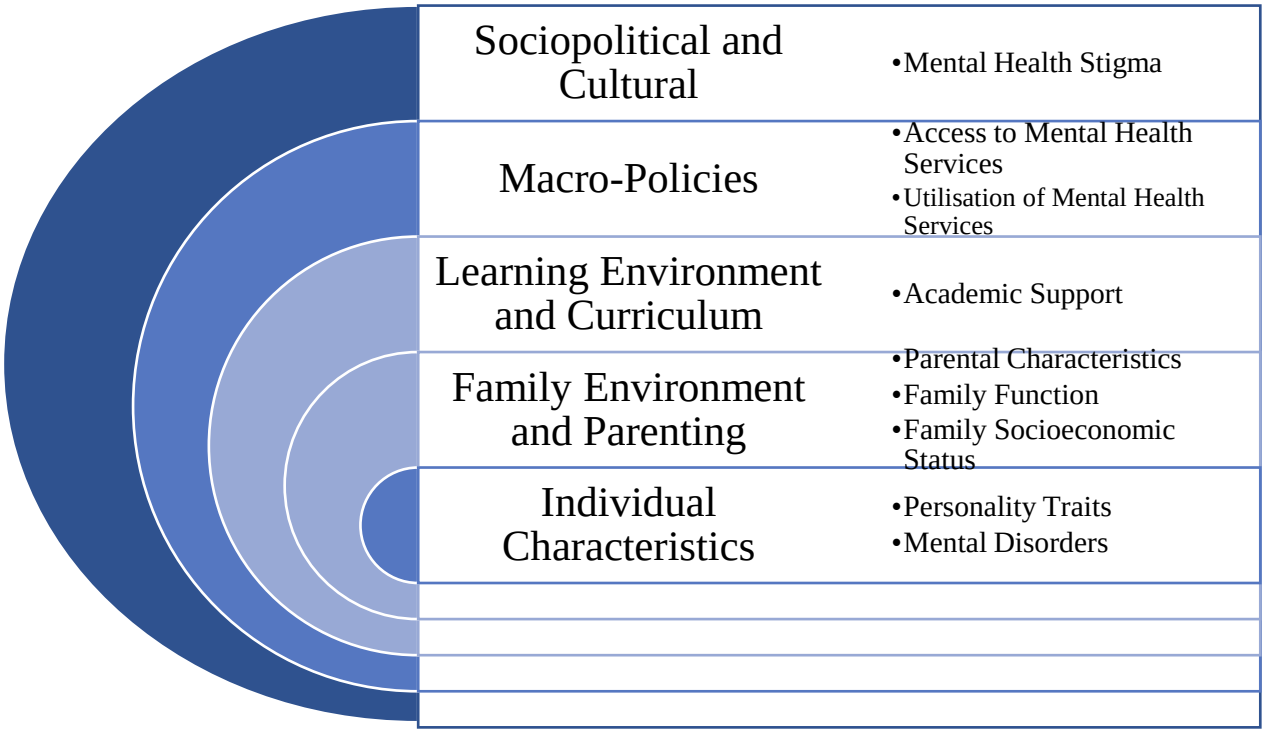

Figure 2-1. A diagrammatic representation of the Bronfenbrenner ecological model as applied to university students

There is a well-documented sex difference in suicidal behaviours, with women more likely to attempt suicide and engage in NSSI than men, and men more likely to succeed in their attempts than women [9,14,22].

Various behavioural outcomes in adolescents and youth, including suicidal behaviours and NSSI are associated with the family environment. Family dysfunction often precedes suicidal behaviours and NSSI [23]. Conflicts in the family, physical abuse, and invalidating family environments, characterised by emotional or physical neglect, poor relationship quality and disrupted attachments, can be triggers for NSSI in adolescent females [24]. Poor family structure and relationships, unstable parental employment, and poor parenting techniques have all been associated with suicidal ideation in this population [24-26]. In the South African context, poor family relations are associated both with suicidal behaviours and NSSI [27], with a negative feeling towards the family being a potential antecedent to suicide attempts [5,7].

Specific parental characteristics previously reported in association with suicidal behaviour and NSSI include parental affectionless control, low maternal warmth, the presence of maternal

anxiety or depression, feelings of alienation in the parent-child relationship, failed protection or overprotection, and poor communication [25,26,28].

As noted above, there is a lack of consistency in the way parent-child relationships have been defined and measured in the literature, with several terms and typologies used to define parental behaviours. One such typology was outlined by Baumrind [29]. She classified parenting styles as permissive, authoritative, neglectful, or authoritarian, although later removed neglectful parenting from her typology. These parenting styles describe the specific practices favoured by parents to influence their children's behaviour and their attitudes towards their children [29,30]. Parenting styles differ along two dimensions, namely warmth (or responsiveness) and demandingness (or control) [29,30]. Permissive parents are non-punitive and use a high warmth/responsiveness, low demandingness/control style in their interaction with their children [30]. Authoritative parents are controlling and demanding [31], but also display high warmth/responsiveness [32]. Authoritarian parents are controlling, while simultaneously displaying low warmth/responsiveness [29,32]. Neglectful parents employ a style of low warmth/responsiveness and low demandingness/control [32]. Authoritative parenting has been found to be protective against S/NSSI in adolescents and youth [22,33], likely due to the presence of positive behaviours such as emotional responsiveness and the use of appropriate boundaries. Local data have supported this finding, with Roman et al. [34] finding that authoritative parenting was associated with positive psychological outcomes in South African adolescents.

In this study, we set out to examine two related questions: first, to determine the rates of S/NSSI in a representative population of university students; second, to explore the association between parenting styles and S/NSSI in the sample using Bronfenbrenner's ecological model as a framework. We predicted that we would be observing rates of S/NSSI that would be higher than reported in the international literature and hypothesised that authoritative parenting style (deemed the most adaptive parenting style) would be associated with reduced rates of S/NSSI. We did not make any *a priori* predictions for the other parenting styles.

Methods

Study design

The study was an anonymous online electronic survey of undergraduate students at the University of Cape Town, South Africa. The study was cross-sectional in design.

Participants

Students across all faculties at the University of Cape Town were invited to participate if they were willing to provide informed consent and were aged between 18 and 24 years of age. Participants who did not indicate their age were excluded. The 18- to 24-year age range was selected given that 18 is the legal age of consent in South Africa and given that young adults reminders were sent after one and two weeks, then two weeks later, followed by a final reminder one month later. After this date, the electronic data collection was concluded.

Measures

Participants completed the following questionnaires as part of the anonymous survey:

Social/demographic questionnaire

The demographic questionnaire asked participants to indicate their age, sex, field of study and year of study.

The Parenting Styles and Dimensions Questionnaire (PSDQ) [35,36]

The PSDQ is a 32-item self-reporting questionnaire that measures adolescents' perceived parenting styles, viz. authoritative, authoritarian, and permissive parenting for both maternal and paternal parental figures. This instrument does not assess for neglectful parenting. The questionnaire asks participants to rate their parents' behaviour on a 5-point Likert scale from 1 (never) to 5 (always) [35,36], with higher scores associated with strong agreement with each parental style. Reported scores are then aggregated to determine the mean score for the sample. This instrument has previously been used in the South African context [34,37].

Self-Harming Behaviours Questionnaire (SHBQ) [38]

The SHBQ is a self-reporting questionnaire designed to measure suicidal/self-harming behaviours using multiple choice and open-ended questions [38,39]. The instrument was initially validated in a sample of college students and was later validated for use in adolescents in the United States [39]. To our knowledge this instrument has not previously been used in the South African context. Questions are divided into four subscales measuring self-harm (non-suicidal), suicide attempt, suicide threat and suicidal ideation [38]. Each subscale is anchored by an introductory question, e.g. 'Have you ever hurt yourself on purpose? / attempted suicide? / threatened to commit suicide? / talked or thought about wanting to die? / talked or thought about committing suicide?' A positive response to any of the anchoring questions would then prompt the participant to answer further clarifying questions regarding each endorsed behaviour. Participant responses were scored and coded using the scoring manual provided by the authors of the instrument. This coding was then used for statistical analysis.

Statistical analysis

All data were collected anonymously. To ensure anonymity, SurveyMonkey parameters were set not to collect any electronic identifiable information about participants. Electronic records were password protected. No qualitative data were used in this study. Statistical analysis was performed using the Statistical Package for the Social Sciences (SPSS) software version 23.0. Descriptive statistics were presented as frequencies or means with standard deviations. Given that participants were allowed not to answer all questions on the SHBQ, the denominator of results differed and was considered in frequency analysis. Data were not normally distributed, and Spearman's correlation was therefore used to examine the association between parenting style and S/NSSI variables. The chi-squared test was used to test for the significance of differences in reported S/NSSI behaviours between male and female students. A p-value of ≤ 0.05 was used as the cut-off for statistical significance.

Research ethics

Ethical approval was obtained from the University of Cape Town Human Research Ethics Committee (HREC) prior to commencing the survey (Reference Number 420/2016 and 556/2016), and additional permission for access to students was obtained from the Department of Student Affairs in the University Administration.

Given the potentially distressing nature of the questions, the HREC insisted that participants should be able to *opt out* of answering any or all of the questions in the SHBQ. In the event that participants experience distress in the course of completing the survey, the online survey form included the contact details for both the National Student Helpline and National Suicide Crisis Line. In addition, email contact details for the study investigators were included in the participant information sheets. Participants experiencing distress were directed to make use of these resources, with study investigators facilitating access to mental health resources in the community if the need arose.

From an 'evidence-based' perspective, the study was expected to carry a minimal risk to participants. In their review, Dazzi and colleagues [40] found no evidence that enquiring about suicidal and related behaviours in adolescents and adults increased suicidal ideation. Instead, acknowledging and discussing suicidal ideation may reduce distress. Similarly, other studies have shown that asking about NSSI does not increase distress [41].

Results

Demographic characteristics

A total of 1136 students were included in the study. Most respondents were female (75.3%, n = 855/1136) and were in the first three years of their studies (76.2%, n = 866/1136). The demographic characteristics of study participants are summarised in Table 2-1.

Table 2-1 Demographic characteristics of participants

		n (%)
Total sample		1136 (100)
Sex	Male	279 (24.6)
	Female	855 (75.3)
	Not specified	1 (0.1)
Year of study	1st	309 (27.2)
	2nd	309 (27.2)
	3rd	248 (21.8)
	4th	139 (12.2)
	5th	75 (6.6)
	6th	16 (1.4)
	Other	37 (3.3)
	Unspecified	3 (0.3)
Age	Mean (SD)	20.50 (1.7)

Suicidal and NSSI behaviours

Given that students had the option to opt out of any of the S/NSSI questions, each rate was calculated using data from the answered questions only. The rate of past suicide attempts was 6.3% (n = 47/746); 9.2% (n = 67/728) have threatened to commit suicide, 35.7% (n = 248/695) have thought or talked about committing suicide and 50.7% (n = 356/702) have thought or talked about being dead. A total of 22.7% (n = 168/740) reported having ever hurt themselves on purpose with no suicidal intent.

There were no statistically significant differences in rates of any of the S/NSSI variables between male and female students: suicide attempts (females 6.7% vs males 5.4%; $x^2 = 0.346$, $p = 0.556$), suicide threats (females 9.6% vs males 8.2%; $x^2 = 0.333$, $p = 0.564$), thinking or talking about committing suicide (females 36.6% vs males 32.7%; $x^2 = 0.829$, $p = 0.363$), thinking or talking about being dead (females 52.4% vs males 45.4%; $x^2 = 5.370$, $p = 0.068$) and hurting self on purpose (females 24.1% vs males 18.0%; $x^2 = 2.861$, $p = 0.091$).

Given that we predicted higher rates of S/NSSI in comparison to those from other international and South African studies of university students, we were keen to base our interpretation on a comparison with similar populations. Table 2-2 shows a synthesis of findings from university students in international and other South African studies, in relation to our observations.

Table 2-2. S/NSSI in university students: comparison of international and South African findings to this study

S/NSSI behaviour	International general population literature (range)	South African general population literature (range)	International university students (range)	This study
Suicidal attempt	0.4–5.8% [1,11,21]	2.9–22.7% [7,19]	0.7–6.9% [17,40,41]	**6.3%**
Suicidal threats		3.8% [6]	1.1% [41]	**9.2%**
Suicidal thoughts	14.3–39.4% [11,21]	9.1% [6]	3.7–32.3% [17,18,40,41]	**35.7%**
Thoughts about being dead				**50.7%**
NSSI	3.3–5.5%[42]	19.4% [19]	3.3–43.9% [13,42,43,44]	**22.7%**

Parenting style

Given the absence of sex differences in S/NSSI, male and female participants were combined for exploration of parenting styles in relation to S/NSSI. As shown in Table 2-3, maternal and paternal authoritative parenting dimensions received the highest mean scores across the sample. Scores in the dimensions of permissive mothers and authoritarian fathers had the lowest means (see Table 2-3).

Table 2-3. Mean (Standard Deviation) scores on the Parenting Styles Questionnaire (n = 1136)

	Mean	Standard Deviation
Mother: Authoritative	3.49	0.65
Mother: Authoritarian	2.74	0.66
Mother: Permissive	2.65	0.62
Father: Authoritative	3.15	0.80
Father: Authoritarian	2.52	0.73
Father: Permissive	2.57	0.70

As shown in Table 2-4, we did not observe a statistically significant negative correlation between the dimension of authoritative parenting (mothers and fathers) and any of the S/NSSI variables. However, authoritative mothering and fathering showed significant positive associations with NSSI (authoritative mothers: $\rho = 0.098$, $p = 0.015$; authoritative fathers: $\rho = 0.102$, $p = 0.017$). Authoritarian parenting showed no significant association with any S/NSSI variables (see Table 2-4). The dimensional scores on permissive fathering showed significant associations with past suicide attempt ($\rho = 0.101$, $p = 0.017$), past suicide threats ($\rho = 0.101$, $p = 0.018$) and suicidal ideation ($\rho = 0.092$, $p = 0.035$). Permissive mothering showed significant positive associations with past suicide attempt ($\rho = 0.085$, $p = 0.033$), past suicide threats ($\rho = 0.083$, $p = 0.040$) suicidal ideation ($\rho = 0.082$, $p = 0.047$), and with the presence of NSSI ($\rho = 0.101$, $p = 0.011$). The S/NSSI variable about talking or thinking about wanting to die did not show significant associations with any of the parenting style dimensions.

Table 2-4. Spearman correlation coefficients of the relationship between parenting style and suicidal/non-suicidal self-injury

	Have you ever attempted suicide? *Spearman's ρ* (*p*-value) (denominator)	Have you ever threatened to commit suicide? *Spearman's ρ* (*p*-value) (denominator)	Have you ever talked or thought about committing suicide? Spearman's ρ (p-value) (denominator)	Have you ever talked or thought about wanting to die? *Spearman's ρ* (*p*-value) (denominator)	Have you ever hurt yourself on purpose? *Spearman's ρ* (*p*-value) (denominator)
Authoritative parenting style					
Mother Authoritative	0.024 (0.554) (610)	-0.038 (0.359) (599)	0.044 (0.291) (571)	0.066 (0.113) (577)	0.098* (0.015) (610)
Father Authoritative	-0.029 (0.501) (545)	0.043 (0.323) (537)	-0.002 (0.961) (510)	-0.004 (0.936) (516)	0.102* (0.017) (545)
Authoritarian parenting style					
Mother Authoritarian	0.044 (0.279) (619)	0.073 (0.074) (607)	0.031 (0.454) (580)	0.022 (0.600) (586)	0.008 (0.837) (619)
Father Authoritarian	-0.022 (0.611) (551)	-0.003 (0.949) (542)	0.052 (0.241) (513)	0.054 (0.220) (519)	-0.067 (0.114) (551)
Permissive parenting style					
Mother Permissive	0.085* (0.033) (628)	0.083* (0.040) (616)	0.082* (0.047) (588)	0.064 (0.117) (594)	0.101* (0.011) (628)
Father Permissive	0.101* (0.017) (559)	0.101* (0.018) (550)	0.092* (0.035) (520)	0.036 (0.416) (526)	0.044 (0.301) (559)

*Sig. (2-tailed) ≤ 0.05

Discussion

This study aimed to explore the rates of suicidal behaviours and NSSI, and the association between parenting style and S/NSSI in undergraduate students at a South African university. We identified suicidal attempts in 6.3%, suicidal threats in 9.2%, suicidal thoughts in 35.7%, thoughts of wanting to die in 50.7%, and NSSI in 22.7% of the participants. Interestingly we saw no significant differences in these rates between male and female students. In terms of parenting styles, authoritative parenting was the most highly endorsed by participants. In contrast to our hypothesis, we did not observe a negative correlation between authoritative parenting style and S/NSSI. Instead, perceived authoritative mothering and fathering showed positive associations with NSSI. Authoritarian parenting styles did not show significant associations with any S/NSSI behaviours, but permissive parenting (mothers and fathers) showed many associations with S/NSSI.

The results of our study showed rates of most S/NSSI behaviours to be either higher than the national average for adults, adolescents and young adults in South Africa, or towards the high end of previously reported rates [6,7,19,42]. These findings are in keeping with the literature where a youthful preponderance in suicidal behaviours is well described both locally and internationally [1,5,6].

The rate of suicide attempts in this study was slightly lower than those seen in South African adults over the age of 18 and adolescents [6,43], with the exception of a study of South African adolescents by Shilubane et al. [7] that reported rates of suicide attempts almost four times the rates found in the current study at 22.7%. Nevertheless, the results of this study revealed higher rates of suicide attempts than those seen in students internationally [17,44,45] and Korean adolescents [11]. We found that the rates of suicide threats in this study were consistently higher than reported international, local and student-related rates of suicidal threats [6,17,44], and more than double the rate of suicide threats seen in South African adults [6].

Similarly, suicidal thoughts were reported at much higher rates than found in local and international literature [6,7,11,17,18,22,44]. The exception was a South African study of suicidal behaviours in adolescents that reported marginally lower rates of suicidal thoughts (32.3% vs 35.7%) [7]. Unlike the current study, the South African study on adolescent suicidal behaviours reported on a much smaller sample size, making any direct comparison difficult.

Comparison of rates of NSSI behaviours showed mixed results. One Canadian study of undergraduate students showed a rate double that of our study [46], but other studies of NSSI in students reported much lower rates than reported in this study (1.4–14.3%) [13,45,47]. Notably, a study of South African students reported slightly lower rates of NSSI (19.4% vs 22.7%) [19].

We were not able to identify any previous studies that had measured the presence of thoughts of dying. However, the very high rate observed in our study (50.2%) suggests that thoughts of dying (even if not accompanied by thoughts of wanting to harm or kill oneself) are very common in university students.

Even though the S/NSSI rates reported here were all towards the higher end or more than previously reported rates, we remain mindful that students in this study were able to opt out of answering any or all questions about suicide. It is therefore possible that the true rate of S/NSSI behaviours in the study population might have been higher if participants affected by these behaviours avoided answering the questions, or lower if unaffected students opted out of answering these questions if they felt questions were not relevant to them. We also acknowledge that there was no consistency in the way S/NSSI behaviours were measured across studies, with no other study using the SHBQ to assess S/NSSI behaviours. Studies in similar populations of South African students had smaller sample sizes and used different measures to assess S/NSSI behaviours [7,19,43], thus making direct comparison difficult.

In the international literature, there is a clear female preponderance of suicide attempts [4,6] and it was therefore surprising not to find significant differences in our study. The pattern of rates for suicidal attempts and other S/NSSI behaviours, as was shown in figure 5, did show higher rates in women for most items, even if there were not statistically significant differences. Interestingly, there have been suggestions from international studies of university students, that the rate of NSSI may be higher among males, suggesting that perhaps not all S/NSSI behaviours are predominant among women. We are also mindful that the relatively low participation rate for men and the possibility of opting out of questions may have influenced our findings. Nevertheless, our observations suggest, if nothing else, that all undergraduate students (male and female) may present with a range of S/NSSI behaviours that may require support or intervention.

In a study conducted at the University of Cape Town around the same time as our investigations, Van der Walt et al. [48] showed that 25% of medical students were diagnosed

with depressive disorder, 20.5% with an anxiety disorder, and that 28.1% of students were receiving psychotropic medications. In their study, female sex was significantly associated with both diagnoses [48]. Unfortunately, their study did not investigate any S/NSSI variables.

On the PSDQ, the dimensions of authoritative parenting showed the highest mean scores, and permissive parenting the lowest mean scores. These findings are in keeping with other South African data, suggesting that the parenting style dimensions measured in this study were representative of the South African population [37]. The associations between parenting style and S/NSSI, however, yielded some unexpected results. A positive correlation between maternal and paternal authoritative parenting and NSSI in our study contrasted with other studies reporting a negative correlation between authoritative parenting and S/NSSI [22,33], and contrasted with findings that demonstrated a positive correlation between authoritative parenting and positive psychological outcomes in adolescents in the form of the pursuit of intrinsic over extrinsic goals [34]. It is difficult to make a definitive interpretation of these findings, except perhaps to acknowledge that the correlation coefficients in our study (Spearman rho values, ρ) were modest (ρ = 0.098 for authoritative mothers; ρ = 0.1 for authoritative fathers), suggesting that, even though statistically significant, the association should not be over-interpreted. If nothing else, our results suggest that, even with authoritative parents, university students may engage in S/NSSI behaviours and thoughts.

Permissive parenting in both mother and father was associated with higher rates of reported S/NSSI behaviours in our study, albeit also with modest Spearman rho correlation coefficient values. We had not made any *a priori* hypotheses about permissive parenting, given unclear evidence in the scientific literature.

We acknowledge that several parental behaviours have been associated with both positive and negative behavioural outcomes in the international literature. Maternal neglect has, for instance, been associated with younger age of onset of substance use [49], while overall parental neglect or hostility was associated with greater suicidal intent and increased risk of delinquent behaviour in adolescents [50,51]. Individuals who had experienced more fear and alienation, and less communication and trust in their relationship with their parents were more likely to engage in NSSI behaviour [28]. Conversely, high parental care had been associated with lowered risk of S/NSSI behaviours [24]. The dimension of ‘permissiveness’ as defined by Baumrind combines ‘parental warmth’ with a relative lack of boundary-setting. Most of the

parental characteristics outlined in the literature above were related to a lack of emotional warmth, which was not the case in our participants with permissive parents.

Given the very modest Spearman rho values observed in our study, we are very cautious not to over-interpret our findings in any definitive way. Instead, we will make a few tentative suggestions that could be explored further in future research.

First, the absence of a negative association between authoritative parenting style and suicidal behaviours (attempts, threats, thoughts, and thoughts of death) may suggest that, at least in university students, the contribution of this parenting style is becoming a lesser contributor to positive behavioural outcomes in the broader ecological context of these young adults. This may reflect the fact that students straddle aspects of adolescence and adulthood, and may be best understood to be emerging into adulthood. Their needs for parental affirmation, and the impact of parenting style may be diminishing. Given the novelty of this observation, the finding may be particular to the South African context where many students are the first generation in their families to enter tertiary education. This may lead to immense pressure to succeed, become financially independent and lift their extended families out of poverty. The authoritative parent that was able to support the adolescent in secondary school, may not have the repertoire and insight into the pressures and constraints under which the emerging adult student is expected to perform, in turn leading to inadequate or inappropriate support and loss of the 'protectiveness' of their authorative parenting style.

Second, the association observed between authoritative parenting styles and NSSI may suggest differential psychological and ecological pathways to NSSI as opposed to suicidal behaviours. However, this finding contradicts the established literature showing a clear correlation between suicidal and NSSI behaviours. Third, the higher 'signal' of S/NSSI associations seen here with permissive parenting may suggest the importance not only of parental warmth, but also of clear and appropriate expectations and boundary-setting by parents, as a contributor to the psychological well-being of university students. For example, during the student phase of emerging adulthood, high levels of parental warmth may be welcomed and appreciated by the student, and experienced as comforting. However, individuation and development of independence and self-efficacy are crucial developmental tasks during this phase. A permissive parent may not set clear expectations or boundaries on their 'emerging adult' student, which in turn may prevent the student from developing the necessary repertoire to prioritise the use of time to achieve academic goals and delay gratification in the form of social and other pleasures.

The lack of adequate preparation for the inevitable and necessary constraints of university life may thus undermine the benefits of high levels of warmth.

Limitations and Future Recommendations

We acknowledge a range of potential limitations to our study. First, we had already raised the fact that, at the request of our ethics committee, answering any or all questions in the SHBQ was optional and only a portion of participants in the larger study completed any of the items in the questionnaire. While we agreed with the ethical principle in doing so, this may have led to an under-reporting of S/NSSI in our study. However, the sample size was still relatively large in comparison to similar studies. Second, the study had a cross-sectional design and was correlational in nature. We were therefore not able to make any causal inferences. Instead, we tried to be cautious in our language not to imply any causal associations between S/NSSI and parenting styles, but rather tried to examine these as potential risks or protective markers. Third, we acknowledge that the study did not account for other potential confounding variables such as co-morbid mental illness or psychosocial variables that could have influenced our findings. However, a highly multivariate study would have required a very large sample size and was outside the scope of our work. Fourth, we acknowledge that we did not examine parenting styles in relation to South Africa's racial and ethnic groups, where clear differential profiles may have existed [37,52]. This would be an important next step in future research. Similarly, we acknowledge that the psychometric properties of the SHBQ have not been examined in a South African context, and this will also be an important next step for research.

Despite these limitations, the study showed students to remain developmentally vulnerable as they face the transition from childhood dependence into adulthood and independence and showed an association between permissive parenting style and S/NSSI behaviours. However, further work is required to determine the relative contribution parenting and other factors associated with developmental outcomes in adolescents and young adults (e.g. childhood adversity) make towards S/NSSI behavioural outcomes in students. Such data could assist in developing interventions in earlier schooling years to improve outcomes in university students. This data could also inform the design of university-based interventions that may include families and parents, as a significant proportion of students remain relatively dependent on their families for the duration of their student years.

The differential correlations between permissive parenting and S/NSSI behaviours versus authoritative parenting and NSSI behaviours suggests the possibility that different developmental mechanisms underly the genesis of suicidal and NSSI behaviours. Further research exploring these possible differential pathways could be helpful in designing parenting interventions for at-risk adolescents and emerging adults.

Conclusion

Suicidal attempts, threats and thoughts, and NSSI were identified in a significant proportion of university students in the study, and rates that were higher or towards the high end of previous national and international comparable studies, underlining the importance to consider S/NSSI phenomena in university students in South Africa and in other LMIC. In spite of the limitations of the study, parenting style characteristics may represent a component of the ecological model that could be strengthened in childhood years through parent training and parent-child interaction therapy. Such support and intervention may represent one component that could help to prepare students for the complex demands of university life.

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List of Abbreviations

NSSI - Non-Suicidal Self-Injury

S/NSSI - Suicidal and Non-Suicidal Self Injury

LMIC - Lower-and-Middle-Income Countries

PSDQ - Parenting Styles Dimensions Questionnaire

SHBQ - Self-Harming Behaviours Questionnaire

HREC - Human Research and Ethics Committee

Declarations

Ethics approval and consent to participate

The study was approved by the Human Research Ethics Committee, Faculty of Health Sciences, University of Cape Town (HREC Reference: 420/2016 and 556/2016) and permission was granted by the institution's Department of Student Affairs.

Consent for publication

Not applicable.

Availability of data and material

The datasets used and/or analyses of the study are available from the authors.

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

MC – Conceptualised the idea, led protocol development, data analysis and interpretation, and drafting and preparation of the manuscript.

ED – Contributed to the conceptualisation of the idea, led data collection, contributed to protocol development, data analysis and interpretation, and drafting of the manuscript.

PJdV – Contributed to the conceptualisation of the idea, contributed to protocol development, data analysis and interpretation, drafting and revision of the manuscript.

All authors read and approved the final manuscript.

Acknowledgements

With special thanks to Michelle Henry for her assistance with data collection and statistical analysis.

Appendices

Appendix I: Information Sheet/Consent Form

Principal Investigator:	Dr Eugene Lee Davids
Co-investigators:	Prof Petrus J de Vries
	Dr Mwanja Chundu

Information Sheet and Consent Form

Do parenting styles matter? A study of attitudes towards condom use, risk behaviour and decision-making in students.

Background

The health behaviour that individuals engage in is often a result of the environment in which they have grown up in. Engaging in health-related behaviours and actions is often due to a conscious decision to engage in certain behaviours and attitudes that either promotes or hinders health and well-being. The decision making styles and strategies that young people engage in is often considered as a developmental outcome that results from the decision making styles used by their parents (Öztürk, Kutlu & Atli, 2011). Therefore as parents play an important role the in socialisation of young people the current study aims to look at the role of perceived parenting styles and decision making styles in predicting the condom use attitudes and self-harm behaviour among young people.

What will I have to do?

We would like to invite you to partake in our research study where you would complete an online self-report questionnaire that will look at how you perceive your parent's attitudes and behaviours, how you making decisions and your attitudes to condom use and other risk behaviours. If you feel that the questions related to risk behaviours may cause any emotional or psychological distress to you, you have the option of skipping those questions on the online questionnaire.

How long will it take to complete the questionnaire?

The questionnaire takes 35 minutes to complete and will be completed individually by following a link to the online SurveyMonkey questionnaire.

What will we do with the information gathered?

The information gathered in this study will be used by second year medical students at the University of Cape Town for their Special Study Module (SSM). This will result in the information gathered to be disseminated through presentations and publications. The results will be used to understand the role of parenting styles in the decisions that you make as a student and your attitudes and behaviours to condom use and other risk behaviour. All information collected as part of the study will be saved on the Principal Investigator's password protected computer for a period of five years and will be destroyed after the five year period.

Will the information gathered in the questionnaire be confidential?

Any dissemination of the study findings will be presented without any identifying information. No personal information will be shared. The information gathered will only be used among SSM student researchers and the Principal Investigator for statistical and research purposes, without any identifying information. In addition, to protect your anonymity, the following steps have been put in place when using SurveyMonkey: (i) all cookies will be disabled so that there will be not tracking or collection of personal information, and (ii) the IP address collector will be disabled to promote anonymous participation in the study.

How will participating in the study benefit you?

The study does not have any known risks or benefits, other than the investment of your time as a participant. Participation in the study is voluntary and you can withdraw from the study at any point in the study without any explanations or consequences.

Is there any risk for participating in the study?

There is no known risk for participation in the study. However, should you feel that participation in the study might cause any emotional or psychological distress you may contact the Principal Investigator (Dr Eugene Lee Davids, Registered Community Mental Health Counsellor) on [redacted] / [redacted] or any of the following numbers: (i) Destiny Helpline for Youth & Students (0800 41 42 43), (ii) Depression & Anxiety Helpline (0800 70 80 90), Suicide Crisis Line (0800 56 75 67 or SMS 31393). Also, you are able to opt

out of the study at any point and there will be no implications on student learning opportunities or assessment should you withdraw / decide not to partake in the study.

Will you get paid for your participation in the study?

We appreciate you investigating your time in participating in the study, however you will not be remunerated for participation in the study. However, participants will be entered into a draw to win one of five R250 vouchers to redeem at The Creamery.

I hereby confirm that:

- I have been informed about the nature, purpose and procedures of the study entitled "Do parenting styles matter? Student condom use attitudes, risk behaviour and decision making".
- I have also received, read and understood the written information about the study.
- I understand that the results of the study, including my opinions, will be reported in a study report and that this information will be kept confidential.
- I understand that the data collected during this study will be kept in a confidential - computerised system.
- I understand that I am free to withdraw from the study at any time.
- I have understood everything that has been explained to me and I consent to take part in this study.

Have any questions?

Should you have any questions about the study feel free to contact the Principal Investigator or the student researchers by contacting: [redacted] / [redacted]

The UCT's Faculty of Health Sciences Human Research Ethics Committee can be contacted on [redacted] *in case you have any ethical concerns or questions about your rights or welfare as a participant on this research study.*

You will be required to indicate informed consent by ticking the appropriate box below.

Please note that by accepting the option to participate in the study you are providing your informed consent.

This will then lead you to the questionnaire.

Would you like to participate in the study?

[ ] Yes [ ] No

Appendix II: Electronic Recruitment Email Invitation

Dear Student,

The Second Year Medicine students at the University of Cape Town would like to invite you to partake in their Special Study Module (SSM) research study: *Do parenting styles matter? A study of attitudes towards condom use, risk behaviour and decision-making in students*.

The study aims to establish how you perceive your mother and father's parenting, how you make decisions and some of your thoughts about condom use and risk behaviour. The study takes approximately 30 minutes to complete online by following the link below. All participants will be entered into a draw to win one of five R250 voucher to redeem at The Creamery.

Study Link: [HERE]

Kind regards,

SSM Student Researchers

Appendix III: Questionnaires

Section A: Demographic questionnaire

Please complete the following by selecting the correct response.

Gender	Male			Female	
Age					
Home language	Afrikaans	English	isiXhosa	Other	
Who do you live with	Both Parents	Mother Only	Father Only	Caregiver / Guardian	Alone
Are your parents	Married	Living together but not married	Single, do not live together and are not married	Single because he / she is widowed	Single because he / she is divorced

Section B: Parenting Style Dimensions Questionnaire

The following questions are about the attitudes and behaviours of your parents or guardians. If you stay with someone other than your mother, who is a female still complete the mother / female parenting form, if you stay with someone other than your father, who is male still complete the father / male form. If you do not stay with both your parents / guardians complete only the relevant form and leave the other section blank.

Mother / Female Parenting Figure Form

This questionnaire lists various attitudes and behaviours of parents. As you remember your **MOTHER / MATERNAL PARENTAL FIGURE** you should choose a number from the scale below that best represents her about each statement. Write the number that best represents your response in the blank space beside each statement.

Not at all like her	Not like her	Somewhat like her	A lot like her
1	2	3	4

1. Was responsive to my feelings or needs	
2. Used physical punishment as a way of disciplining me.	
3. Took my desires into account before asking me to do something.	
4. When I asked why I had to conform, [she stated]: because I said so, or I am your parent and I want you to.	
5. Explained to me how she felt about my good and bad behaviour.	
6. Spanked me when I was disobedient.	
7. Encouraged me to talk about my troubles.	
8. Found it difficult to discipline me.	
9. Encouraged me to freely express myself even when I disagreed with them.	
10. Punished me by taking privileges away from me with little if any explanations.	
11. Emphasized the reasons for rules.	
12. Gave comfort and understanding when I was upset.	
13. Yelled or shouted when I misbehaved.	
14. Gave praise when I was good.	
15. Gave into me when I caused a commotion about something.	
16. Exploded in anger towards me.	

17. Threatened me with punishment more often than actually giving it.	
18. Took into account my preferences in making plans for the family.	
19. Grabbed me when I was being disobedient.	
20. Stated punishments to me and did not actually do them.	
21. Showed respect for my opinions by encouraging me to express them.	
22. Allowed me to give input into family rules.	
23. Scolded and criticized me to make me improve.	
24. Spoiled me.	
25. Gave me reasons why rules should be obeyed.	
26. Uses threats as punishment with little or no justification.	
27. Had warm and intimate times together with me.	
28. Punished me by putting me off somewhere alone with little if any explanations.	
29. Helped me to understand the impact of my behaviour by encouraging me to talk about the consequences of my own actions.	
30. Scolded and criticized me when my behaviour didn't meet their expectations.	
31. Explained the consequences of my behaviour.	
32. Slapped me when I misbehaved.	

Father / Male Parenting Figure Form

This questionnaire lists various attitudes and behaviours of parents. As you remember your **FATHER / PATERNAL PARENTAL FIGURE** you should choose a number from the scale below that best represents him about each statement. Write the number that best represents your response in the blank space beside each statement.

Not at all like him	Not like him	Somewhat like him	A lot like him
1	2	3	4

1. Was responsive to my feelings or needs	
2. Used physical punishment as a way of disciplining me.	
3. Took my desires into account before asking me to do something.	
4. When I asked why I had to conform, [he stated]: because I said so, or I am your parent and I want you to.	
5. Explained to me how he felt about my good and bad behaviour.	
6. Spanked me when I was disobedient.	
7. Encouraged me to talk about my troubles.	
8. Found it difficult to discipline me.	
9. Encouraged me to freely express myself even when I disagreed with them.	
10. Punished me by taking privileges away from me with little if any explanations.	
11. Emphasized the reasons for rules	
12. Gave comfort and understanding when I was upset.	
13. Yelled or shouted when I misbehaved.	
14. Gave praise when I was good.	
15. Gave into me when I caused a commotion about something.	
16. Exploded in anger towards me.	

17. Threatened me with punishment more often than actually giving it.	
18. Took into account my preferences in making plans for the family.	
19. Grabbed me when I was being disobedient.	
20. Stated punishments to me and did not actually do them.	
21. Showed respect for my opinions by encouraging me to express them.	
22. Allowed me to give input into family rules.	
23. Scolded and criticized me to make me improve	
24. Spoiled me.	
25. Gave me reasons why rules should be obeyed.	
26. Uses threats as punishment with little or no justification.	
27. Had warm and intimate times together with me.	
28. Punished me by putting me off somewhere alone with little if any explanations.	
29. Helped me to understand the impact of my behaviour by encouraging me to talk about the consequences of my own actions.	
30. Scolded and criticized me when my behaviour didn't meet their expectations.	
31. Explained the consequences of my behaviour.	
32. Slapped me when I misbehaved.	

Section E: Self-Harming Behaviour Questionnaire

A lot of people do things which are dangerous and might get them hurt. There are many reasons why people take these risks. Often people take risks without thinking about the fact that they might get hurt. Sometimes, however, people hurt themselves on purpose. We are interested in learning more about the ways in which you may have intentionally or unintentionally hurt yourself. We are also interested in trying to understand why people your age may do some of these dangerous things. It is important for you to understand that if you tell us about things you've done which may have been unsafe or make it possible that you may not be able to keep yourself safe, we will encourage you to discuss this with a counsellor or contact someone on the list of numbers we have provided in order to keep you safe in the future. Please select YES or NO in response to each question and answer the follow up questions. For questions where you are asked who you told something, do not give specific names. We only want to know if it was someone like a parent, teacher, doctor, etc.		
Things you may have actually done to yourself on purpose. 1. Have you ever hurt yourself on purpose? If **no**, go on to question number 2. If **yes**, what did you do?	Yes	No
a. Approximately how many times did you do this?		
b. Approximately when did you first do this to yourself (write your age)?		
c. When was the last time you did this to yourself (write your age)?		
d. Have you ever told anyone that you had done these things? If **yes**, who did you tell?	Yes	No
e. Have you ever needed to see a doctor after doing these things?	Yes	No
Times you hurt yourself badly on purpose or tried to kill yourself. 2. Have you ever attempted suicide?	Yes	No

If **no**, go to question number 4 If **yes**, how? (Note: If you took pills, what kind? _____; how many? _____; over how long a period of time did you take them? _____)		
a. How many times have you attempted suicide?		
b. When was the most recent attempt (write your age)?		
c. Did you tell anyone about the attempt? If **yes**, who?	Yes	No
d. Did you require medical attention after the attempt? If **yes** were you hospitalised overnight or longer? How long were you hospitalised?	Yes Yes	No No
e. Did you talk to a counsellor or some other person like that after your attempt? If **yes**, who?	Yes	No
3. If you attempted suicide, please answer the following: a. What other things were going on in your life around the time that you tried to kill yourself? _____ b. Did you actually want to die? c. Were you hoping for a specific reaction to your attempt? If **yes**, what was the reaction you were looking for? _____ d. Did you get the reaction you wanted?	Yes Yes	No No

If you *didn't*, what type of reaction was there to your attempt? _____ e. Who knew about your attempt? _____	Yes	No
Times you threatened to hurt yourself badly or try to kill yourself 4. Have you ever threatened to commit suicide? If **no**, go on to question number 5. If **yes**, what did you threaten to do? _____	Yes	No
a. Approximately how many times did you do this?		
b. Approximately when did you first do this (write your age)?		
c. When was the last time you did this (write your age)?		
d. Who did you make the threats to? (eg. mom, dad)		
e. What other things were going on in your life during the time that you were threatening to kill yourself? _____		
f. Did you actually want to die?	Yes	No
g. Were you hoping for a specific reaction to your threat? If **yes**, what was the reaction you were looking for? _____	Yes	No
h. Did you get the reaction you wanted? If you didn't, what type of reaction was there to your attempt? _____	Yes	No
Times you talked or thought seriously about attempting suicide 5. Have you ever talked or thought about: Wanting to die?	Yes	No

Committing suicide?	Yes	No
a. What did you talk about doing? _____		
b. With whom did you discuss this?		
c. What made you feel like doing this? _____		
d. Did you have a specific plan for how you would try to kill yourself? If **yes**, what plan did you have? _____	Yes	No
e. In looking back, how did you imagine people would react to your attempt? _____		
f. Did you think about how people would react if you did succeed in killing yourself? If **yes**, how did you think they would react? _____	Yes	No
g. Did you ever take steps to prepare for this plan? If **yes**, what did you do to prepare?	Yes	No

Appendix IV: Study Budget

Study title: Perceived Parenting Style and Suicidal/Non-Suicidal Self-Injury in Students at the University of Cape Town

Study investigators: Dr Mwanja Chundu, Prof Petrus J de Vries (Primary Supervisor), Dr Eugene Davids (Supervisor)

Project Funding

Funding Source	Amount (ZAR)
Faculty of Health Sciences MMed Project Grant	5,000.00
	Total (ZAR)
	5,000.00

Project Cost Estimates

Cost Item	Quantity	Amount (ZAR)
Creamery Voucher at R250 each		

	5	1,250.00
Stationery, printing, binding and Sundries		3,000.00
Health Statistician		2,500.00
Publication Costs		+/- 35,0000.00
SurveyMonkey Pro Subscription	1-year subscription	10,999.00
Refreshments (SSM Student Research Day Presentation)		1,500.00
		Total (ZAR)
		54,249.00

Appendix V: Ethics Approval Forms

UNIVERSITY OF CAPE TOWN
Faculty of Health Sciences
Human Research Ethics Committee

Room E53-46 Old Main Building
Groote Schuur Hospital
Observatory 7925
Telephone [021] 406 6626
Email: shuretta.thomas@uct.ac.za
Website: www.health.uct.ac.za/fhs/research/humanethics/forms

19 August 2016

HREC REF: 556/2016

Prof P de Vries
Child & Adolescent Psychiatry
Building B, Red Cross Unit

Dear Prof de Vries

PROJECT TITLE: PERCEIVED PARENTING STYLE AND SUICIDAL/NON-SUICIDAL SELF-INJURY IN MEDICAL STUDENTS IN CAPE TOWN (MMED Candidate - Dr M Chundu)

Thank you for submitting your study to the Faculty of Health Sciences Human Research Ethics Committee.

It is a pleasure to inform you that the HREC has **formally approved** the above-mentioned study.

Approval is granted for one year until the 30th August 2017.

Please submit a progress form, using the standardised Annual Report Form if the study continues beyond the approval period. Please submit a Standard Closure form if the study is completed within the approval period.
(Forms can be found on **our website:** www.health.uct.ac.za/fhs/research/humanethics/forms)

Please quote the HREC REF in all your correspondence.

Please note that the ongoing ethical conduct of the study remains the responsibility of the principal investigator.

Please note that for all studies approved by the HREC, the principal investigator **must** obtain appropriate institutional approval before the research may occur.

The HREC acknowledge that the MMed student, Mwanja Chundu will also be involved in this study.

Yours sincerely

PROFESSOR M BLOCKMAN
CHAIRPERSON, FHS HUMAN RESEARCH ETHICS COMMITTEE
Federal Wide Assurance Number: FWA00001637.
Institutional Review Board (IRB) number: IRB00001938
This serves to confirm that the University of Cape Town Human Research Ethics Committee complies to the Ethics Standards for Clinical Research with a new drug in patients, based on the Medical

UNIVERSITY OF CAPE TOWN
Faculty of Health Sciences
Human Research Ethics Committee

Room E53-46 Old Main Building
Groote Schuur Hospital
Observatory 7925
Telephone [021] 406 6626
Email: shuretta.thomas@uct.ac.za
Website: www.health.uct.ac.za/fhs/research/humanethics/forms

15 July 2016

HREC REF: 420/2016

Dr E Davids
Psychiatry & Mental Health
Adolescent Health Research Unit
Red Cross Hospital

Dear Dr Davids

PROJECT TITLE: DO PARENTING STYLES MATTER? A STUDY OF THE ATTITUDES TOWARDS CONDOM USE, RISK BEHAVIOUR AND DECISION-MAKING IN STUDENTS (SSM PROJECT)

Thank you for your response to the Faculty of Health Sciences Human Research Ethics Committee dated 13 July 2016.

It is a pleasure to inform you that the HREC has **formally approved** the above-mentioned study.

Approval is granted for one year until the 30th July 2017.

Please submit a progress form, using the standardised Annual Report Form if the study continues beyond the approval period. Please submit a Standard Closure form if the study is completed within the approval period.
(Forms can be found on our website: www.health.uct.ac.za/fhs/research/humanethics/forms)

Please quote the HREC REF in all your correspondence.

Please note that the ongoing ethical conduct of the study remains the responsibility of the principal investigator.

Please note that for all studies approved by the HREC, the principal investigator **must** obtain appropriate institutional approval before the research may occur.

The HREC acknowledge that the following students will also be involved in this study: Samuel Bambisa, Georgia Lilford, Nathina Pakade and Rubin Mahomed.

Yours sincerely

pp T Burgess

PROFESSOR M BLOCKMAN
CHAIRPERSON, FHS HUMAN RESEARCH ETHICS COMMITTEE
Federal Wide Assurance Number: FWA00001637.
Institutional Review Board (IRB) number: IRB00001938

Form FHS006: Protocol Amendment

HREC office use only (FWA00001637; IRB00001938)		
☐ Approved	☐ Type of review: Expedited	☐ Full committee
This serves as notification that all changes and documentation described below are approved.		
Signature HREC Chairperson / Designee		Date 2/8/2020

Note: All major amendments must include a local **PI Synopsis** justifying the changes for the amendment. Please note that incomplete amendment submissions will not be reviewed.

Please email this form and supporting documents (if applicable) in a combined pdf-file to hrec-enquiries@uct.ac.za.

Please clarify your plan for research-related activities during COVID-19 lockdown.

Comments from the HREC to the Principal Investigator:
Note: The approval of this protocol amendment does not grant annual approval. Please complete the FHS018 / FHS017 form for annual approval at least one month before study expiration.

Principal Investigator to complete the following:

1. Protocol Information

Date (when submitting this form)			
HREC REF Number	556/2016		
Protocol title	Perceived Parenting Style and Suicidal/Non-Suicidal Self-Injury in Students at the University of Cape Town		
Protocol number (if applicable)	Version 2.0		
Principal Investigator	Prof Petrus J de Vries		
Department / Office Internal Mail Address	Division of Child and Adolescent Psychiatry petrus.devries@uct.ac.za		
1.1 Is this a major or a minor amendment? (see FHS006hlp) Major (tick box) Minor (tick box)		☐ Major	☑ Minor
1.2 Does this protocol receive US Federal funding?		☐ Yes	☑ No

	RESEARCH ACCESS TO STUDENTS	DSA 100

NOTES

1. This form must be **FULLY** completed by all applicants that want to access UCT students for the purpose of research.
2. Return the fully completed **(a) DSA 100** application form **by email**, in **the same word format**, together with **your: (b) research proposal inclusive of your survey, (c) copy of your ethics approval letter / proof (d) informed consent letter** to: Moonira.Khan@uct.ac.za You application will be attended to by the Executive Director, Department of Student Affairs (DSA), UCT.
3. The turnaround time for a reply is **approximately 10 working days**.
4. NB: It is the responsibility of the researcher/s to apply for and to obtain **ethics approval and to comply with amendments that may be requested;** as well as **to obtain** approval to access UCT staff and/or UCT students, from the following, at UCT, respectively: (a) **Ethics**: Chairperson, Faculty Research Ethics Committee' (FREC) for ethics approval, (b) **Staff access:** Executive Director: HR for approval to access UCT staff, and (c) **Student access:** Executive Director: Student Affairs for approval to access UCT students.
5. **Note:** UCT Senate Research Protocols requires compliance to the above, **even if prior approval has been obtained from any other institution/agency. UCT's research protocol requirements applies to *all* persons, institutions and agencies from UCT and external to UCT who want to conduct research on human subjects for academic, marketing or service related reasons at UCT.**
6. **Should approval be granted to access UCT students for this research study, such approval is effective for a period of one year from the date of approval (as stated in Section D of this form), and the approval expires automatically on the last day.**
7. **The approving authority reserves the right to revoke an approval based on reasonable grounds and/or new information.**

SECTION A: RESEARCH APPLICANT/S DETAILS

Position	Staff / Student No	Title and Name	Contact Details (Email / Cell / land line)
A.1 Student Number	DVDEUG002	Dr Eugene Lee Davids	eugene.davids@uct.ac.za/ 071 671 5654 /021 6858837
A.2 Academic / PASS Staff No.			
A.3 Visitor/ Researcher ID No.			
A.4 University at which a student or employee		Address if *not* UCT:	
A.5 Faculty/ Department/School	Adolescent Health Research Unit, Division of Child & Adolescent Psychiatry, Faculty of Health Sciences		

A.6 APPLICANTS DETAILS If different from above	Title and Name	Tel.	Email

SECTION B: RESEARCHER/S SUPERVISOR/S DETAILS

Position	Title and Name	Tel.	Email
B.1 Supervisor	Prof Petrus de Vries	021 685 4103	petrus.devries@uct.ac.za
B.2 Co-Supervisor/s			

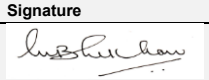
SECTION C: APPLICANT'S RESEARCH STUDY FIELD AND APPROVAL STATUS

C.1 Degree – if applicable	N/A
C.2 Research Project Title	Do parenting styles matter? A study of attitudes towards condom use, risk behaviour and decision-making in students
C.3 Research Proposal	Attached: Yes ■ No ☐
C.4 Target population	All students in the Faculty of Health Sciences, University of Cape Town
C.5 Lead Researcher details	If different from applicant:
C6. Will use research assistant/s	Yes ☐ No ■ If yes- provide a list of names, contact details and ID no.
C.7 Research Methodology and Informed consent:	**Research methodology**: Survey questionnaire **Informed consent: will be obtained and confidentiality is assured.**
C.8 Ethics clearance status from UCT's Faculty Ethics Research Committee (FREC)	Approved by the FREC Yes ■ With amendments: Yes ☐ No ■ (a) Attach copy of your ethics approval. Attached: Yes (b) State date and reference no. of ethics approval: Date: 15 July 2016 Ref. No.: 420/2016

SECTION D: APPLICANT/S APPROVAL STATUS FOR ACCESS TO STUDENTS FOR RESEARCH PURPOSE

(To be completed by the ED, DSA or Nominee)

	Approved / With Terms / Not	* Conditional approval with terms	Applicant/s Ref. No.:
D.1 APPROVAL STATUS	(i) Approved ■ ~~(ii) With terms~~ ~~(iii) Not approved~~	**(a)** Access to students for this research study must only be undertaken after written ethics approval has been obtained. **(b)** In event any ethics conditions are attached, these must be complied with before access to students.	DVDEUG002/ Dr Eugene Lee Davids

D.2 APPROVED BY:	Designation	Name	Signature	Date of Approval
	Executive Director Department of Student Affairs	*Dr Moonira Khan*		*21 July 2016*

Appendix VI: Journal Publication Criteria (Child and Adolescent Psychiatry and Mental Health)

CAPMH Publication Criteria

Research articles should report on original primary research.

CAPMH strongly encourages that all datasets on which the conclusions of the paper rely should be available to readers. We encourage authors to ensure that their datasets are either deposited in publicly available repositories (where available and appropriate) or presented in the main manuscript or additional supporting files whenever possible. Please see Springer Nature's information on recommended repositories.

Authors who need help depositing and curating data may wish to consider uploading their data to Springer Nature's Research Data Support or contacting our Research Data Support Helpdesk. Springer Nature's Research Data Support provides data deposition and curation to help authors follow good practice in sharing and archiving of research data, and can be accessed via an online form. The services provide secure and private submission of data files, which are curated and managed by the Springer Nature Research Data team for public release, in agreement with the submitting author. These services are provided in partnership with figshare. Checks are carried out as part of a submission screening process to ensure that researchers who should use a specific community-endorsed repository are advised of the best option for sharing and archiving their data. Use of Research Data Support is optional and does not imply or guarantee that a manuscript will be accepted.

Preparing your manuscript

The information below details the section headings that you should include in your manuscript and what information should be within each section.

Please note that your manuscript must include a 'Declarations' section including all of the subheadings (please see below for more information).

Title page

The title page should:

- present a title that includes, if appropriate, the study design e.g.:
  - "A versus B in the treatment of C: a randomized controlled trial", "X is a risk factor for Y: a case control study", "What is the impact of factor X on subject Y: A systematic review"
  - or for non-clinical or non-research studies a description of what the article reports
- list the full names and institutional addresses for all authors
  - if a collaboration group should be listed as an author, please list the Group name as an author. If you would like the names of the individual members of the Group to be searchable through their individual PubMed records, please include this information in the "Acknowledgements" section in accordance with the instructions below
- indicate the corresponding author

Abstract

The Abstract should not exceed 350 words. Please minimize the use of abbreviations and do not cite references in the abstract. Reports of randomized controlled trials should follow the CONSORT extension for abstracts. The abstract must include the following separate sections:

- **Background:** the context and purpose of the study
- **Methods:** how the study was performed and statistical tests used
- **Results:** the main findings
- **Conclusions:** brief summary and potential implications
- **Trial registration:** If your article reports the results of a health care intervention on human participants, it must be registered in an appropriate registry and the registration number and date of registration should be in stated in this section. If it was not registered prospectively

(before enrollment of the first participant), you should include the words 'retrospectively registered'. See our editorial policies for more information on trial registration

Keywords

Three to ten keywords representing the main content of the article.

Background

The Background section should explain the background to the study, its aims, a summary of the existing literature and why this study was necessary or its contribution to the field.

Methods

The methods section should include:

- the aim, design and setting of the study
- the characteristics of participants or description of materials
- a clear description of all processes, interventions and comparisons. Generic drug names should generally be used. When proprietary brands are used in research, include the brand names in parentheses
- the type of statistical analysis used, including a power calculation if appropriate

Results

This should include the findings of the study including, if appropriate, results of statistical analysis which must be included either in the text or as tables and figures.

Discussion

This section should discuss the implications of the findings in context of existing research and highlight limitations of the study.

Conclusions

This should state clearly the main conclusions and provide an explanation of the importance and relevance of the study reported.

List of abbreviations

If abbreviations are used in the text they should be defined in the text at first use, and a list of abbreviations should be provided.

Declarations

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Supplementary material/private homepage

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Doe, J: Title of preprint. http://www.uni-heidelberg.de/mydata.html (1999). Accessed 25 Dec 1999.

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