THE ROLE OF EMOTIONAL INTELLIGENCE IN THE RELATIONSHIP BETWEEN PSYCHOSOCIAL FACTORS AND SUICIDE BEHAVIOUR IN SOUTH AFRICAN ADOLESCENTS

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DECLARATION

I, Hilda du Plooy, declare that the thesis submitted by me for the PhD in Child Psychology degree at the University of the Free State is my own independent work and has not previously been submitted by me at another university/faculty. I furthermore cede copyright of the thesis in favour of the University of the Free State.

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“If you assume that there is no hope, you guarantee that there will be no hope. If you assume that there is an instinct for freedom, that there are opportunities to change things, then there is a possibility that you can contribute to making a better world.”

— **Noam Chomsky**

ABSTRACT

Globally and especially in South Africa there is a growing concern about the presence of emotional disturbances among adolescents manifesting itself as suicide behaviour. Suicide behaviour among the adolescents is ranked as one of the top two causes of death in South Africa. Hence, it is necessary to explore the various factors contributing to this alarming situation. Therefore, the overall aim of this study was to investigate the role of emotional intelligence (EI) in the relationship between psychosocial factors and adolescent suicide behaviour, along with gender and racial differences.

The study utilized quantitative methods with a non-experimental correlational design. The stratified sample participants included a total of 662 learners between grade 10-12 from the Eden district, Western Cape Province. The total sample consisted of male (N=275), female (N=387), Black (N=342), Coloured (N=253), and White adolescents (N=65). The quantitative measures used to obtain information was The Suicidal Ideation Questionnaire, Adolescent Version (SIQ), The Life Stressors and Social Resources Inventory, Youth Form (LISRES), the Bar-On Emotional Quotient Inventory, Youth Version (Bar-On EQI), and a biographical questionnaire. Through moderated hierarchical regression analyses, gender and racial differences were determined in regards to significant differences in suicidal ideation, interpersonal stressors-and resources, and emotional intelligence.

As suicidal ideation has been proved to be a good predictor of suicide risk behaviour among adolescents, findings in the current study indicated a high suicide risk (N = 229) among the total sample, bringing the incidence of suicide behaviour to 34.6%. Gender- and racial differences were found in relation to interpersonal stressors-and resources and risk of suicide behaviour, with female adolescents reporting a stronger correlation between experienced interpersonal stressors (parents, family and school) and higher levels of suicide behaviour. The Coloured adolescents, in comparison with the White adolescents, reported friends as the main stressor that correlated with increased levels of suicide behaviour. Friends as a resource were reported to be strongly correlated with lower levels of suicide behaviour amongst the Black and White adolescent sample, but specifically among the White adolescents. The parent resource showed a significant negative correlation with suicide behaviour amongst the total group of adolescents. For the White adolescents, experiencing school as a resource decreased suicide behaviour

significantly.

With regards to Emotional Intelligence (EI), Stress management had the most significant negative correlation with suicide behaviour among the total group of adolescents. Results suggested no gender differences between EI and suicide behaviour. Racial differences were found among the Black and White adolescents on the total EI score. A higher total EI score was more significant for the White group in relation to decreased levels of suicide behaviour, than the Black group. The group of White adolescents also reported a strong negative correlation with general mood EI (feeling optimistic and happy) and suicide behaviour.

In determining the moderating role of EI in the relationship between interpersonal stressors and resources and risk towards suicide behaviour, gender-and racial differences were also reported. Among the male adolescents, poor adaptability and stress management EI led to an increase of suicide behaviour when parents and school, as stressors, were high. The findings also showed that the White adolescent group with low and high adaptability EI led to a rise in suicide behaviour when increased levels of friends as stressor were reported, while the presence of poor adaptability EI was more strongly associated with higher suicide levels among this group. Among the Coloured adolescent sample, the adolescents with higher levels of interpersonal EI displayed a greater increase in suicide behaviour with an increase in friends as stressor. This was found to be more pronounced when compared with the Coloured adolescents who reported low levels of interpersonal EI. Pertaining to resources, the total group of adolescents reported a strong negative correlation between high levels of interpersonal EI and suicide behaviour when there was an increase of parents as resource. Findings further indicated that for the total group of adolescents with higher adaptability EI, there was a decrease in suicide behaviour when there was an increase of boy-/girlfriend as resource. Among the adolescents with low levels of adaptability EI, there was a risk of displaying higher levels of suicide behaviour, regardless if support was received from a boy-/girlfriend. Lastly, high levels of interpersonal EI showed a strong negative correlation with suicide behaviour among all the adolescents who experienced increases of boy-/girlfriend as a resource. Interestingly, although a strong positive correlation between low levels of interpersonal EI and suicide behaviour was expected, it was present irrespective of whether boy-/girlfriend as a resource increased or not.

The findings of this study recommend EI skills training in mental health settings and educational curricula in the prevention and intervention of suicide behaviour among adolescents. The implementation of programmes aimed at enhancing social support and skills for parents, families, the school, and adolescents, are also recommended. Additional research is recommended to explore the dynamics of other personal variables and nature of interpersonal relationships among the different gender and racial groups within the South African context. These interventions could expand on the knowledge of the risk and protective factors involved in adolescent suicide behaviour.

Key words: adolescents, suicide behaviour, South Africa, psychosocial factors, interpersonal stressors and resources, emotional intelligence, gender and racial differences

OPSOMMING

Wêreldwyd, en veral in Suid-Afrika, is daar toenemende kommer oor die voorkoms van emosionele versteurings onder adolessente wat as wanaanpassingsgedrag soos selfmoordgedrag manifesteer. In Suid-Afrika word selfmoordgedrag onder adolessente as een van die twee oorsake van dood gereken wat die meeste voorkom, derhalwe is daar ŉ behoefte om die verskeie faktore wat tot hierdie onstellende situasie bydra te ondersoek. Die hoofdoelwit van hierdie studie was dus om die rol van EI in die verband tussen psigososiale faktore en adolessente selfmoordgedrag, sowel as geslags- en rasverskille, te ondersoek. Die studie het kwantitatiewe metodes gebruik met ‘n nie-eksperimentele korrelasionele navorsingsontwerp. Die gestratifeerde steekproefgroep het ‘n totaal van 662 leerders tussen graad 10-12 van die Edendistrik, Wes-Kaap Provinsie ingesluit. Die totale steekproef het bestaan uit manlike (N=275), vroulike (N=387), Swart (N=342), Kleurling (N=253) en Wit (N=65) adolessente. Die kwantitatiewe meetinstrumente wat gebruik is om inligting in te samel was die Suicidal Ideation Questionnaire, Adolescent Version (SIQ), Life Stressors-and Social Resources Inventory, Youth Form (LISRES), die Bar-On Emotional Quotient Inventory, Youth Version (Bar-On EQI) en ‘n biografiese vraelys. Met behulp van gemodereerde hiërargiese regressie ontledings is geslags-en rasverskille bepaal in terme van beduidende verskille ten opsigte van selfmoordideasie, interpersoonlike stressore-en hulpbronne en emosionele intelligensie.

Daar is bewys dat selfmoord-ideasie risikogedrag onder adolessente kan voorspel. In die huidige studie bring adolessente met ŉ hoë selfmoordrisiko (N = 229) die voorkoms van selfmoordgedrag tot 34.6%. Geslags- en rasverskille is aangedui in die verhouding tussen die interpersoonlike faktore (stressors en hulpbronne) en selfmoordgedrag. Vroulike adolessente het ŉ duideliker korrelasie getoon tussen die stressors wat hulle ervaar (ouers, gesin en skool) en hoër vlakke van selfmoordgedrag. Die Kleurling adolessente, in vergelyking met die Wit adolessente, het vriende as ŉ hoofstressor aangedui, wat korreleer met verhoogde vlakke van selfmoordgedrag. Daar is aangetoon dat vriende as ŉ hulpbron sterk korreleer met laer vlakke van selfmoordgedrag onder die Swart en Wit adolessente steekproefgroep, maar veral onder die Wit adolessente. Ouers as hulpbron het ŉ beduidende negatiewe korrelasie met selfmoordgedrag onder die totale groep van adolessente getoon. Onder die Wit adolessente het die ervaring van skool as ŉ hulpbron die waarskynlikheid van selfmoordgedrag beduidend verlaag.

Met betrekking tot Emosionele Intelligensie (EI), het Streshantering die mees beduidende negatiewe korrelasie met selfmoordgedrag onder die totale groep adolessente gehad. Resultate het geen geslagsverskille tussen EI en selfmoordgedrag suggereer nie. Rasverskille is tussen die Swart en Wit adolessente op die totale EI-telling gevind. 'n Hoër EI-telling is meer beduidend onder die Wit groep in verhouding tot verlaagde vlakke van selfmoordgedrag as onder die Swart groep. Die groep Wit adolessente het ook 'n sterk negatiewe korrelasie met algemene gemoedstoestand EI (voel optimisties en gelukkig) en selfmoordgedrag getoon.

Met die bepaling of EI 'n matigende rol speel in die verhouding tussen interpersoonlike stressors en hulpbronne en 'n risiko tot selfmoordgedrag, is geslags- en rasverskille vasgestel. Onder die manlike adolessente het swak aanpasbaarheid en stresbeheer EI tot 'n toename in selfmoordgedrag gelei wanneer die meting van ouers en skool as stressors hoog was. Die bevindinge het aangetoon dat die groep Wit adolessente met lae en hoë aanpasbaarheid EI tot 'n verhoging in selfmoordgedrag gelei het wanneer verhoogde vlakke van vriende as stressor aangetoon is, maar die teenwoordigheid van swak aanpasbaarheid EI was steeds in hierdie groep met baie hoër selfmoordvlakke geassosieer. Onder die Kleurling adolessente het die adolessente met hoër vlakke van interpersoonlike EI en met vriende as stressor 'n groter toename in selfmoordgedrag getoon. Dit was ook duideliker wanneer dit vergelyk word met die Kleurling adolessente wat lae vlakke van interpersoonlike EI getoon het. Betreffende hulpbronne, het die totale groep adolessente 'n sterk negatiewe korrelasie tussen hoë vlakke van interpersoonlike EI en selfmoordgedrag getoon wanneer daar 'n toename in ouers as hulpbron was. Die bevindinge het verder aangetoon dat daar 'n afname in selfmoordgedrag vir die totale groep adolessente met hoër aanpasbaarheid EI was wanneer daar 'n toename in die kêrel/meisie as hulpbron was. Onder die adolessente met laer vlakke van aanpasbaarheid EI was daar die risiko om hoër vlakke van selfmoordgedrag aan te dui, ongeag of daar ondersteuning van 'n kêrel/meisie was. Laastens, hoë vlakke van interpersoonlike EI het 'n sterk negatiewe korrelasie met selfmoordgedrag onder al die adolessente getoon wat 'n vermeerdering in die kêrel/meisie as hulpbron ervaar het. Dit is interessant dat, hoewel te wagte, daar 'n sterk positiewe korrelasie tussen lae vlakke van interpersoonlike EI en selfmoordgedrag

gevind sou wees, dit sterk teenwoordig was ongeag of kêrel/meisie as ’n hulpbron verhoog het of nie.

Die bevindinge van hierdie studie beveel EI vaardigheidsopleiding binne geestesgesondheidsinstellings en opvoedkundige curricula aan vir die voorkoming van en intervensie in selfmoordgedrag onder adolessente. Die implementering van programme wat daarop gemik is om sosiale ondersteuning en vaardigheid van ouers, gesinne, die skool en adolessente te verbeter, word ook aanbeveel. Bykomende navorsing om die dinamika van ander persoonlike variante en die aard van interpersoonlike verhoudings onder die verskillende geslags- en rasgroepe binne die Suid-Afrikaanse opset word aanbeveel. Hierdie intervensies kan die kennis oor die risiko- en beskermingsfaktore wat by adolessente selfmoordgedrag betrokke is, uitbrei.

Sleutelwoorde: adolessente, selfmoordgedrag, Suid-Afrika, psigososiale faktore, interpersoonlike stressors en hulpbronne, emosionele intelligensie, matigende effek, geslags- en rasverskille

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ARTICLE 1
THE EFFECTS OF PSYCHOSOCIAL FACTORS ON SUICIDE BEHAVIOUR AMONG SOUTH AFRICAN ADOLESCENTS

Abstract

The stark reality and associated tragedy of adolescent suicide behaviour remains a significant public health challenge in South Africa. Currently, suicide behaviour ranks as one of the top two causes of death amongst South African adolescents and the numbers are rising annually. An important influence on the outcome of adolescent suicide behaviour remains in the social sphere of the adolescent – parents, family, friends, and school play a major role in the life and well-being of the adolescent. The main objective of this study is to investigate whether gender and racial differences play a moderating role in the relationship between the interpersonal factors (stressors and resources) and suicide behaviour reported. A quantitative non-experimental correlational methodology was followed. Through stratified random sampling a total sample of 662 grade 10, 11 and 12 learners (ages 16-18) in the Eden district, Western Cape Province, completed a biographical questionnaire, the Suicidal Ideation Questionnaire (SIQ, Adolescent Version) and the Life Stressors and Social Resources Inventory (LISRES, Youth Form). The total sample of adolescents (N = 229) with a high suicide risk brings the incidence of suicide behaviour to 34.6% for the current

study. Results from the moderated hierarchical regression analysis suggest gender and racial differences in the reported experienced stressors and resources of interpersonal nature. Male and female adolescents reported a strong correlation between experienced stressors (parents, family, school) and higher levels of suicide behaviour, with females scoring higher levels of suicide behaviour on the reported stressors. The Coloured adolescents in comparison with the White adolescents, reported friendships as a main stressor that correlated with increased levels of suicide behaviour. Friends, as a resource, reported a strong correlation with lower levels of suicide behaviour among the Black and White adolescent sample, but more specifically among the White adolescents. The parents resource showed a significant negative correlation with suicide behaviour amongst the total group of adolescents. For the White adolescents, experiencing school as a resource decreased the likelihood of suicide behaviour significantly. The unique contribution of the present study is the finding that stressors and resources in the interpersonal domain of the adolescent play an important role in the level of suicide behaviour and differs amongst gender and racial groups. Support from parents, in general, seems to be the most important protective factor against suicide behaviour amongst all of the adolescents. The recommendations made on the results from this study are that research on adolescent suicide behaviour aimed at exploring the dynamics involved should be a continuous process. In South Africa, gender and race differences regarding experienced social stressors and resources should be taken into account when developing and implementing suicide prevention programmes. The implementation of programmes aimed at enhancing social support and skills for parents, families, the school, and adolescents is also recommended.

Keywords: suicide behaviour; adolescents; psychosocial factors; interpersonal stressors and resources; gender differences; racial differences; moderating effect; South Africa.

Globally there has been a growing concern regarding the escalation in suicide behaviour, specifically amongst the adolescent population (Schlebusch, 2012). The World Health Organization (WHO) confirmed an increase of 60% in suicide behaviour over the past 45 years, and regards it as one of the top two causes of death amongst young people aged 15-19 years of age (Patton et al., 2009; WHO, 2012). The same trend has been observed in South Africa, although recent studies suggest that it surpasses the global average rate of 16 per 100 000 (Shilubane et al., 2013). The South African Youth Risk Behaviour Survey (YRBS) of 2011 also showed that more than one in six learners (17.6%) considered attempting suicide, 15.6% of learners made plans to engage in suicidal acts, and 17.8% attempted suicide on one or more occasions during the six months preceding the survey (Reddy et al., 2013). Two similar surveys from 2002 and 2008 likewise revealed a steady increase in suicide behaviour amongst the South African adolescent population (Reddy et al., 2003; Reddy et al., 2010). It is thus of paramount importance to explore the contributing psychosocial factors to this escalation in order to curb further acceleration of suicide behaviour among the South African adolescents (Reddy et al., 2010; Schlebusch, 2005; 2012).

Various studies have explored the role of psychosocial factors, for example, international and local research have identified a significant correlation between interpersonal relationships and adolescent suicide behaviour (Bridge, Goldstein, & Brent, 2006; Campbell, 2012; George, 2009; King & Merchant, 2008; Madu & Matla, 2003; Tancred, 2010). These important interpersonal relationships include family, friends, peers, romantic partners, and significant others, such as teachers at school (Bridge et al., 2006; Buitron et al., 2016; Peltzer, 2008). These relationships can either be a source of stress or a resource for the adolescents' well-being (Whitlock, Wyman, & Moore, 2014).

The objective of this study was therefore to explore the effects of interpersonal stressors and resources on the suicide behaviour among South African adolescents. The unique multicultural context of South Africa also augmented a need to explore the impact of gender and race on the relationship between psychosocial factors (interpersonal stressors and resources) and suicide behaviour.

In the following sections, adolescent suicide behaviour in South Africa and the interpersonal stressors and resources in the adolescent's domain are discussed.

Suicide behaviour among South African adolescents

Suicide behaviour is viewed on a continuum consisting of a collection of self-destructive thoughts and behaviours, which range from suicidal ideation, verbal suicide threats, suicide attempts and completed suicide (Sveticic & De Leo, 2012). According to Sveticic and De Leo (2012) suicidal ideation, as a distinction of suicide behaviour, can vary from cognitions about the worthlessness of life and wishes to die without the suicide act, to more concrete thoughts and plans about committing suicide. Specifically, with regard to adolescents, suicidal ideation has been proved to be a major predictor towards increased suicide risk behaviour (Miranda & Shaffer, 2013). For instance, population studies have shown that although suicidal ideation can be transient among adolescents, shifts from suicidal ideation to attempted suicide occur within a year of each other (Nock, et al., 2013). Therefore, suicidal ideation is an important variable to consider in suicide prevention-and intervention research (Miranda & Shaffer, 2013).

According to literature there has been a steady increase in suicide behaviour internationally among the age group 15-29 years of age (Bertolote, Fleischmann, De Leo, & Wasserman, 2009). The same tendency has been observed in South Africa. A recent study, for example, suggest that South Africa is surpassing the world average suicide rate among ages 15-29 years of age (Shilubane et al. 2013). This increase of adolescent suicide behaviour differs from the past, where suicide behaviour was predominantly associated with older people (Bertolote et al., 2009). This could be attributed to more demanding pressures put on current adolescents to assume adult roles and responsibilities without having the necessary emotional maturity to deal with these demands (Elkind, 2001). Adolescents in South Africa especially seem to be affected by a number of social and economic hardships, such as unemployment, poverty, violence, HIV/AIDS, and teenage pregnancy (Meehan, Peirson, & Fridjhon, 2007; Netshiombo & Mashamba, 2012; Steyn, Badenhorst, & Kamper, 2010). A further challenge adolescents have to face is the rising number of child-headed households due to increasing HIV/AIDS related parental deaths, where adolescents are forced to fulfil parenting roles for their younger siblings (Netshiombo & Mashamba, 2012). These multiple challenges can predispose the South African adolescent to a range of mental health problems and risk behaviour, of which suicide behaviour has become a noticeable concern (Flisher et al., 2012; Flisher, Mathews, Mukoma, & Lombard, 2006;

Schlebusch, 2005; 2012).

Within the continuum of suicide behaviour, gender differences also seem to contribute to the frequency and intensity of suicide behaviour (Bantjes & Kagee, 2013; Flisher, Liang, Laubscher, & Lombard, 2004; Mashego & Madu, 2009). It therefore becomes crucial to understand the impact of gender on suicide behaviour.

Gender and suicide behaviour

Several studies reported a higher number of completed suicides amongst male adolescents because of access to lethal methods, such as firearms, substance abuse, and the influence of masculinity (Bantjes & Kagee, 2013; Flisher et al., 2004; Mac an Ghaill & Haywood, 2012; Mashego & Madu, 2009). The role of masculinity is important as males are encouraged to be more independent and to not communicate their emotional distress to others (Mac an Ghaill & Haywood, 2012). This behaviour can subsequently lead to a greater sense of isolation from family and other support structures that could decrease vulnerability to suicide behaviour (Mac an Ghaill & Haywood, 2012; Netshiombo & Mashamba, 2012). In contrast, female adolescents experience more suicidal ideation and attempt suicide more often, choosing less lethal methods, such as self-poisoning and medication overdose (Bantjes & Kagee, 2013; Mashego & Madu, 2009). Females are often viewed as more emotionally vulnerable and are thus placed at a greater risk to develop mood disorders and therefore have an increased predisposition toward suicide behaviour (Burrows, Vaez, & Laflamme, 2007; Mashego & Madu, 2009; Peltzer, 2008).

Recently, suicide research conducted in South Africa has indicated significant increases in suicide behaviour among adolescents across all racial groups (Bantjes & Kagee, 2013; Donson, 2009; Schlebusch, 2005). This confirms the need to understand the role of race in suicide behaviour.

Race[1] and suicide behaviour

Previous studies in South Africa have shown a higher prevalence of suicide

[1] The Black, White, and Coloured racial groups have been referred to in this study. The use of these terms does not imply acceptance of historically racist attitudes and assumptions. The racial groups have been used for comparison of conditions between these broad population groups within this study and furthermore, for comparison of findings between different studies.

behaviour among the White adolescent population in comparison with the other racial groups (Bantjes & Kagee, 2013; Flisher et al., 2004). According to Flisher et al. (2004) this difference could be attributed to lack of external sources to blame when faced with misfortunes or problems among the White adolescents. With regard to the variances in rates of suicide behaviour amongst the Indian and Coloured adolescent communities, lower levels of suicide were attributed to religious prohibitions (Flisher, et al., 2004), while among the Black cultures close family relationships and cultural restrictions protected the adolescents from suicide behaviour (Flisher et al., 2004).

However, according to Schlebusch (2005; 2012), more accurate research has since indicated that while the suicide rate among White adolescents has remained relatively consistent, there has been a disconcerting rise in suicide behaviour among the Black, Coloured, and Indian adolescent groups. This finding has been confirmed by a recent national survey conducted in South Africa by Reddy et al. (2013) who reported a higher prevalence of suicide behaviour among the Black and Coloured adolescent groups, with Black adolescents reporting higher levels of sadness and feelings of hopeless (39%) compared to the Coloured (26%), the White (17%) and the Indian adolescents (18%). The Coloured adolescent groups indicated the highest levels of adolescents considering attempting suicide (23%) and plans to commit suicide (20%) in comparison with the Black adolescents (15% – 17%) (Reddy et al., 2013). In the light of this new research indicating a rise of suicide behaviour among specifically the Black and Coloured adolescent population, Schlebusch, Vawda, and Bosch (2003) explain that the post-apartheid socio-historical context of South Africa plays a huge role because there has been higher levels of stress among these racial groups. This is associated with a shift from collectivist to more individualistic cultural norms, as well as political and socio-economic challenges. The influence of acculturation on suicide behaviour relates specifically to a loss of social cohesion and support as the Westernised individualistic cultures place more emphasis on independence, personal choice, and freedom (Möller-Leimkühler, 2003).

It is vital to adopt a broader multidimensional and holistic approach in understanding causes of suicide having observed the unique role of gender and race on individual suicide. This would require a focus on psychosocial factors in adolescent suicide behaviour.

Psychosocial factors in adolescent suicide behaviour

Currently, suicide is viewed from a more holistic integration of psychological, social and biological stressors and resources which explains the multidimensional nature of suicide behaviour (O'Connor & Nock, 2014). The main three theories that have been receiving much attention are Joiner's Interpersonal Psychological Theory (Joiner, 2005), the Cry of Pain Theory (Williams, 2001), and the Integrative Motivational Volitional Model of Suicidal Behavior (O'Connor, 2011).

Joiner's Interpersonal Psychological Theory (2005) specifically relates to the presence of interpersonal stressors increasing the risk of suicide behaviour (Van Orden et al., 2010). This theory states that suicidal ideation is caused by a combination of high levels of perceived burdensomeness (i.e. feeling that one is a burden to others), feelings of thwarted belongingness (i.e. feeling disconnected from others) and a consistent feeling of hopelessness that the situation will not change (Joiner, 2005; Van Orden et al., 2010). Regarding adolescents, Buitron et al. (2016) explain that acute and/or chronic interpersonal stress can influence the quality and quantity of social interactions adolescents have with significant others. Within this conflictual relationship, there is also the added probability that the adolescents will feel disconnected and view themselves as a burden in the relationship (Buitron, et al., 2016; King & Merchant, 2008; Whitlock et al., 2014). Maintaining such perceptions can lead to thoughts of suicide (Buitron et al., 2016; Joiner, 2005; Van Orden et al., 2010; Whitlock et al., 2014). The Cry of Pain Theory (Williams, 2001) conceptualises suicide behaviour among adolescents as the outcome (the cry) to a stressful situation that leads to feelings of defeat, inescapability and no probability of rescue (for example, low social support) (O'Connor & Nock, 2014; Williams & Pollock, 2001).

Derived from the Cry of Pain Theory, the Integrative Motivational Volitional Model of Suicidal Behaviour (O'Connor, 2011) also emphasises the importance of the three components of defeat, no escape, and no rescue, leading to an increased likelihood of suicide behaviour among adolescents. This model, however, also integrates other key factors that have been found to increase vulnerability towards suicide behaviour among adolescents, such as exposure to the suicide behaviour of others (i.e. family and peers), impulsivity, and having access to methods to engage in suicide behaviour (O'Connor, 2011; O'Connor, Rasmussen, & Hawton, 2012).

In summary, a common focus of the above-mentioned contemporary theories of suicide behaviour seems to be on the role interpersonal relationships play in general, and specifically factors, such as social isolation and absence of social support, as being high correlates of suicide risk (O'Connor & Nock, 2014). In the following section, the main interpersonal stressors and resources within the domain of the adolescent and suicide behaviour are considered. This includes relationships with parents, family, friends, peers, boyfriend/girlfriend, and significant others in the school environment.

Parent and family relationships and suicide behaviour

In the search for greater autonomy and a sense of identity, the adolescent's social world undergoes a shift, moving away from the primary family system towards the peer group (Berger, 2011; Laible, Carlo, & Roesch, 2004). Even with the increased need for greater independence, family support and attachment remain important factors for adolescents (Laible et al., 2004). Various studies have established that healthy family attachment, closeness and support lead to more adaptive emotional development, better school performance, decreased use of substances, delayed sexual experimentation, and less suicide attempts among adolescents (Connor & Reuter, 2006; Resnick et al., 1997). Various studies in South Africa reported that social support and acceptance from family decreased the levels of suicidal ideation (Du Plessis, 2012; George & Van den Berg, 2012; Maphula & Mudhovozi, 2012).

Another South African study, based on adolescents in Cape Town, reported maternal closeness to be an important predictor of suicidal ideation among, especially, female adolescents (Gilreath, King, Graham, Flisher, & Lombard, 2009). This could be ascribed to females being more socially connected and consequently more inclined to be negatively influenced by poor interpersonal relationships than their male counterparts (Gilreath et al., 2009).

Studies that have explored the influence of race on family relationships and suicide behaviour have noted interesting results. For instance, Campbell (2012) reports that the highest levels of suicide behaviour among Coloured and Black female adolescents were largely due to parent-child conflicts and stressors experienced from the extended family. Madu and Matla (2003) also reported a high occurrence of suicide behaviour among Black adolescents, particularly stating poor family bonds and lack of

social cohesion. Research by Buitron et al. (2016) and Kerr, Preuss and King (2006) explains that a consistent unresolved conflictual parent-adolescent relationship and inadequate support can lead to an adolescent feeling like a burden, hopeless and powerless during times of stress, hence increasing the risk towards self-destructive behaviours such as suicide.

Other family interpersonal stressors, such as parental separation/divorce, marital discord, maladaptive parenting and poor attachment to family, family violence, child maltreatment, maternal depression, and alcohol abuse were found to result in the adolescent feeling isolated and disconnected. This, thus increased the risk of suicide behaviour in times of distress (Atwoli, Nock, Williams, & Stein, 2014; Qin, Mortensen, & Pedersen, 2009; Schlebusch, 2005; Schmeelk-Cone, Pisani, Petrova, & Wyman, 2012; Vawda, 2012).

Friendship and romantic relationships are other sources of stress or support that can play a role in adolescent suicide behaviour (Daniel & Goldston, 2012).

Friendships and romantic relationships and suicide behaviour

The ability and need to belong to a peer group, and the establishment of intimate romantic relationships form a fundamental age-related task for the adolescent (Laible et al., 2004). Peer groups serve as a significant indicator regarding an adolescent's level of popularity, social status and the way they view themselves (Laible et al., 2004; Steinberg & Morris, 2001). Both female and male adolescents seem to value intimacy and friends that are honest, loyal and trustworthy (Bauminger, Finzi-Dottan, Chason, & Har-Even, 2008). Girls in particular tend to rely more on friends for support and tend to self-disclose more than boys (Bauminger et al., 2008). Lack of social support or perceived support from friends and peers, for instance the break-up of a romantic relationship, has a strong correlation with suicide behaviour (Buitron et al., 2016; Daniel & Goldston, 2012; Gagnon, Davidson, Cheifetz, Martineau, & Beauchamp, 2009). In a South African study, Black adolescents viewed romantic relationships as the main interpersonal stressor related to higher levels of suicide behaviour, whilst Coloured adolescents found their relationships with friends to be one of the greatest stressors (Du Plessis, 2012).

Being in an intimate relationship might put additional pressure on both partners, but in most cases the female, to engage in sexual intercourse (Louw & Louw, 2007). The risk of HIV infection among adolescents and unwanted teenage pregnancies are extremely high due to unprotected sex (South African Human Rights Commission (SAHRC), 2011). Adolescents infected by HIV/AIDS face social stigma, poor social support, fear of disclosure and stigmatisation, co-morbid psychiatric illnesses, such as depression and substance abuse, all of which could contribute to a high risk of suicide behaviour (Schlebusch & Vawda, 2010). Unwanted teenage pregnancy has been cited as one of the etiological factors increasing the risk of depression and suicide behaviour among this group (Hodgkinson, Colantuoni, Roberts, Berg-Cross, & Belcher, 2010; Shilubane, Ruiter, Bos, Reddy, & Van den Borne, 2014).

Taking into consideration that the above-mentioned relationships and experiences are also found within the school environment of the adolescent, the additional influence the relationships with peers and teachers can have on suicide risk is discussed below.

Relationships with peers and teachers in the school environment and suicide behaviour

Various studies explored several factors in the school environment that are likely to have an influence on suicide behaviour. For example, Cheng et al. (2009) found that the level of suicide behaviour decreased considerably among adolescents in a school environment where fellow students and teachers were viewed as kind and helpful. Additional protective factors in the school environment that showed a negative correlation with suicide behaviour are: a fondness towards school, school safety, and academic achievement (Taliaferro & Muehlenkamp, 2014), while high expectations set by parents or teachers to succeed, competition amongst learners, being bullied, violating rules, being expelled from school or experiencing punishment from teachers lead to increases in suicide behaviour amongst adolescents (Ang & Huan, 2006; Gagnon et al., 2009; Peltzer & Pengpid, 2012; Shilubane et al., 2014). The Grade 12 final examinations have also been associated with extreme stress and suicide behaviour among adolescents (Bridge et al., 2006). In broad terms, academic stress seems to heighten the risk for adolescent psychopathology of which depression is the most common, and has a strong comorbidity with suicide behaviour (Ang & Huan, 2006; Da

Costa & Mash, 2008; Schlebusch, 2005).

In conclusion, the literature reviewed suggests that interpersonal relationships not only form an integral part of an adolescent's successful journey into adulthood, but also are critical to consider in the aetiology of adolescent suicide behaviour. Given the scarcity of research in South Africa on adolescent-related suicide behaviour, specifically research encompassing the unique multicultural South African context, is needed. Subsequently, the current study aims to compare a sample of female and male, Black, Coloured and White adolescents with regard to psychosocial factors (interpersonal stressors and resources) and suicide behaviour.

Methodology

The aim of this study was to investigate the effect of psychosocial factors (interpersonal stressors and resources) on suicide behaviour among adolescents in South Africa. More specifically, the goal was to determine whether gender and race moderated the relationship between interpersonal stressors and resources and suicide behaviour. In this study, gender and race were regarded as moderator variables.

Research design

For the purpose of this study, a quantitative non-experimental correlational methodology was used. This allowed the researcher to consider the different set of variables and to establish the type and strength of the relationship between the variables (Gravetter & Forzano, 2009).

Participants and data gathering

The total sample of participants comprised of 662 grade 10-12 learners with ages ranging from 16-18 years of age (the mean age of the sample was 17.51 years of age with a standard deviation of 1.16). The participants were selected using a stratified random sampling technique from which 10 schools were randomly selected from a total of the 29 secondary schools in the Eden district, Western Cape Province. The population of the Eden district constitutes 10% of the total population of the Western Cape Province (5.8 million) and comprises seven local municipalities that include the towns of Ladismith, Riversdale, Mossel Bay, George, Oudtshoorn, Knysna and Plettenberg Bay. Table 1 displays the frequency distribution of the single biographical

variables. The sample characteristics reported 387 females (58.5%) and 275 males (41.5%) with the racial group distribution as follows: 342 Black (51.7%), 253 Coloured (38.2%) and 67 White (10.1%).

Table 1

Frequency Distribution of Single Biographical Variables

Biographical variable		N	%
	Gender		
	Female	387	58.5
	Male	275	41.5
Total:		662	100.0
	Grade		
	10	23	3.5
	11	395	59.7
	12	244	36.9
Total:		662	100.0
	Race		
	Black	342	51.7
	Coloured	253	38.2
	White	67	10.1
Total:		662	100.0
	Home language		
	Afrikaans	317	47.9
	Xhosa	318	48.0
	English	19	2.9
	Zulu	6	0.9
	SeSotho	0	0.0
	Setswana	0	0.0
	Other	2	0.3
Total:		662	100.0

From a demographic perspective, the Eden district has a total population of about 575 000 of which 47 500 are adolescents in the age group (15-19 years) and with a larger female to male distribution. The three main racial groups in the Eden district area are Coloured (54%), Black (25%), and White (19%). The main languages spoken in this area are Afrikaans (71%) and Xhosa (18%), followed by English (7%) (Statistics South Africa, 2012).

In terms of ethical considerations, the Research Ethics Committee of the Faculty of Humanities, University of the Free State approved the study. Further permission was granted by the Western Cape Department of Education to conduct the study and to contact the school principals. With the co-operation of the various school principals a testing time was arranged for each specific school. An informational pamphlet on suicide prevention and a parental consent form were made available in the preferred home language of the parent and learner. Written informed consent was

obtained from the parents before the testing day. With regards to acquiring informed consent from the learners, the researcher and assistant provided more information to the learners on the day of testing. Anonymity, confidentiality and voluntary participation were guaranteed with an opportunity to withdraw at any given time. Before testing commenced, each learner was asked to give written consent.

Due to copyright regulations, the questionnaires could only be administered in English. The researcher employed an assistant with a psychological background and proficiency in the three main languages to assist with the administering of the questionnaires and translation. The assistant received prior training in the management of the questionnaire and other administrative duties to ensure the successful collection of data. The questionnaires were successfully completed within a two-hour period. A debriefing opportunity was made available in case a learner experienced emotional distress after the completion of the questionnaire. Every school principal was also encouraged to contact the researcher if there was any learner or parent requiring further support. In addition, a telephonic follow-up was done two weeks after the specific school visit and testing.

Description of variables

Because the role of gender and race in the relationship between psychosocial factors and suicide behaviour among the adolescents was explored, it is important to describe the different types of variables in this study. Suicide behaviour is the dependent variable and psychosocial factors (interpersonal stressors and resources) are the independent variables. With regard to suicide behaviour a single total score was obtained for every participant. Five different scores were obtained for the independent variables concerning the stressors and resources for parents, family, school, friends, and boy-/girlfriend. Since the role of gender and race in this correlation was investigated, they were regarded as the moderator variables in this model.

The following measuring instruments were used to measure the different variables:

Measuring instruments

A *biographical questionnaire,* compiled by the researcher, was used to gather information regarding grade, age, gender and racial group.

The dependent variable was assessed using *the senior high school version of the Suicidal Ideation Questionnaire* (SIQ: Reynolds, 1988). This questionnaire measures the frequency and intensity of suicidal thoughts reported by the participants and consists of 30 items that are answered on a seven point Likert scale. Examples of questions ranged from ("I thought about killing myself" to "I thought about hurting myself but not killing myself"). The score of each item is added to yield a total raw score. The total suicide ideation score ranges from 0-180. According to Reynolds (1988) a total score of >31 can be considered as indicative of a high suicide risk. With regard to reliability, Reynolds (1988) reported a Cronbach alpha coefficient of 0.97 in an American study with adolescents. The reliability of the scale received a good report in South African studies by George (2009) and Du Plessis (2012), which reported Cronbach alpha coefficients of 0.95 and 0.97 respectively.

The youth form of the Life Stressors and Social Resources Inventory (LISRES: Moos & Moos, 1994) was used to measure the independent variables, namely psychosocial factors, and includes a wide range of stressors, as well as the social resources available to participants. The instrument consists of 209 items divided into two sections, namely Life Stressors and Social Resources. The inventory has a total of sixteen subscales, nine of which measure life stressors and seven measuring social resources. The Life Stressors subscales are: Physical Health (PH), Home and Money (HM), Parents (PAR), Siblings (SIB), Extended Family (FAM), School (SCH), Friends (FR), Boyfriend/Girlfriend (BG) and Negative Life Experiences (NLE). The Social Resources subscales are: Parents (PAR), Siblings (SIB), Extended Family (FAM), School (SCH), Friends (FR), Boyfriend/Girlfriend (BG) and Positive Life Experiences (PLE). Some questions required a Yes or No answer for example, "Have you moved to a worse home?", "Has your relationship with your mother/stepmother changed for the better?" to certain questions that entailed the frequency (Never, Seldom, Sometimes, Often, Fairly often), for example, "Is she (mother/stepmother) critical or disapproving of you?", "Do you have fun, joke or laugh with her?". As the focus of this particular study pertained to the interpersonal domain of the adolescent, results of the Life Stressor and Social resources subscales namely, Parents, Extended Family, School, Friends, and Boyfriend/Girlfriend were used. A high score on the stressor subscales indicates that participants experience the particular variable as stressful, while a high score on the resource subscales indicate the presence of adequate resources in a specific

domain. The internal consistency index varies from between 0.79 to 0.88 for the stressor subscales and 0.78 to 0.91 for the social resources subscales (Moos & Moos, 1994). A South African study, conducted by Du Plessis (2012), reported Cronbach alpha coefficients ranging between 0.74 and 0.96 for all subscales.

The reliability of the measuring instruments used in this study was investigated by computing Cronbach's alpha coefficients (SPSS Incorporated, 2011). The alpha coefficients for all the scales, including the total and the three racial groups, are reported in Table 2.

Table 2

Reliability (Cronbach's Alpha Coefficients) for the Measuring Instruments

Scales of measuring instruments	Alpha coefficient			
	Total	Black	Coloured	White
Suicide Behaviour	0.963	0.960	0.967	0.977
Stressors:				
Parents	0.836	0.814	0.848	0.893
Family	0.800	0.782	0.811	0.856
School	0.767	0.765	0.781	0.747
Friends	0.769	0.772	0.771	0.780
Boy-/Girlfriend	0.766	0.735	0.787	0.918
Resources:				
Parents	0.876	0.863	0.891	0.879
Family	0.846	0.848	0.845	0.828
School	0.824	0.820	0.831	0.818
Friends	0.792	0.791	0.796	0.781
Boy-/Girlfriend	0.899	0.887	0.913	0.854

From Table 2 it is evident that the computed coefficients ranged from 0.977 (Suicide behaviour – White group) to 0.735 (Boy-/Girlfriend – Black group). According to Lance, Butts and Michels (2006), coefficients of 0.7 and above are acceptable in the social sciences. Therefore, the measuring scales in this study provide sufficient reliability and subsequently, all the variables were used in the statistical analysis that follows.

Research question

In connection with the reviewed literature, the following research question was formulated:

> Is the relationship between psychosocial factors and adolescent suicide behaviour being moderated by gender and race?

To investigate this question, a particular statistical analysis procedure was followed that is henceforth discussed.

Statistical analysis

In the following moderated hierarchical regression analyses described by Howell (2013), the possible moderating role of gender and race in the relationship between psychosocial factors and suicide behaviour (criterion) were investigated. A moderator variable influences the direction and/or strength of the relationship between the predictor and criterion variables (Baron & Kenny, 1986).

In order to determine whether the intervening variable(s) act as moderator(s) in the relationship between the independent and dependent variables, different steps must be performed in the hierarchical regression procedure. First, the analysis of a single variable consists of adding one of the psychosocial variables (for example parents as stressor) to the regression equation to determine its unique contribution. During step two, both the independent and intervening variables (for example parents as stressor and gender) are added to the equation. In this way the significant proportional contribution of each of the predictor variables with regard to the forecast of the criterion variable (suicide behaviour) are determined. Step three comprises investigating the ***product*** between the independent variable (for example parents as stressor) and gender, in the prediction of suicide behaviour (for example parents x gender). If the computed *beta*-coefficient of the product term (step 3) is significant, it can be assumed that a significant interaction exists, thereby implying a ***moderating*** effect (Howell, 2013). If gender and race are then identified as moderators, it can be concluded that the strength or direction in the relationship (for example parents as stressor and suicide behaviour) is being influenced by these moderator/s (Field, 2013). However, as noted by Warner (2013), in studies where a moderator effect is being investigated, a significant correlation between the independent and dependent variables is not always a requirement.

Referring to Table 1 it is evident that both the moderators are categorical in nature. Gender has only two categories and can be used easily in regression analysis by assigning the codes 0 (males) and 1 (females) to the different categories. There is three categories of race. In order to use this variable in the regression analysis it is necessary to convert it to several variables, each with two categories. Consequently, it is required

to do dummy coding. During the creation of dummy variables (where more than two categories are present), two groups are created with a value of 0 or 1. The number of dummy variables created is always one minus the number of categories (Field, 2013). In this instance it is two dummy variables. The first step is to choose a baseline group. In this study, it was decided to use the White adolescents as baseline and to compare the Black and Coloured adolescents with them. The baseline group (White adolescents) are assigned a value of 0 for all the dummy variables. For the first dummy variable (Black vs White) the Black adolescents were assigned a value of 1 and the others were given a code 0. For the second dummy variable (Coloured vs White) the Coloured group of adolescents was given a code of 1 while a code 0 was assigned to the others.

All the analyses were performed using the SPSS-programme (SPSS Incorporated, 2011). Both the 1% and the 5% levels of statistical significance were used in this study.

Results and discussion

Descriptive statistics

Before investigating the specific research question, the descriptive statistics in terms of minimum and maximum values, the means and standard deviations as well as the skewness and kurtosis values of all the involved variables for the total group are presented and discussed.

For the interpretation of the skewness and kurtosis indexes, the guidelines provided by Brown (2012) were applied. According to Brown (2012) the following interpretation with regard to the skewness index can be made:

- If smaller than -1.0 or greater than +1.0, the distribution will be very skewed.
- If between -1.0 and -½ or between +½ and +1.0, the distribution will be moderately skewed.
- If between -½ and +½, the distribution will be moderately symmetrical.
- If equal to 0, the distribution is normal.

In order to interpret the kurtosis index, it is important to determine the excess kurtosis (kurtosis-3). In other words, if a distribution is normal the kurtosis value will be = 3 so that (3-3 = 0) are indicative of an excessive kurtosis with a value of zero. If

the excessive kurtosis has a negative value, it means that the distribution will be relatively flat (platykurtic). A positive kurtosis value indicates a distribution that is relatively peaked (leptokurtic). In the following tables the excessive kurtosis values are shown, thereby indicating that if a value is smaller than 2 (-2.0) or more than 2 (+2.0), the distribution will be either very flat or very peaked. In Table 3 the descriptive statistics are presented for the total participant group with regard to the independent and dependent variables.

Table 3

Minimum Values, Maximum Values, Means, Standard Deviations, Skewness and Kurtosis of Dependent and Independent Variables

	Min	Max	Mean	SD	Skewness	Kurtosis
Suicide Behaviour	0	179	34.77	36.90	1.538	1.636
Stressors:						
Parents	0	21.3	9.36	4.81	0.325	-0.620
Family	0	20.0	6.50	4.24	0.411	-0.185
School	0	41.5	15.67	7.41	0.240	-0.020
Friends	0	24.0	7.13	4.43	0.577	0.633
Boy-/Girlfriend	0	19.0	6.18	4.10	0.260	-0.587
Resources:						
Parents	0	20.0	11.55	4.66	-0.148	-0.546
Family	0	28.0	17.05	6.26	-0.292	-0.494
School	0	20.0	10.64	4.64	0.039	-0.501
Friends	0	40.0	23.83	7.14	-0.378	0.121
Boy-/Girlfriend	0	20.0	13.82	5.33	-0.819	-0.002

From Table 3 it is evident that, with the exception of suicide behaviour, in which instance the data deviate from normal, acceptable skewness and kurtosis values were obtained. Suicide behaviour is indicative of pathological behaviour, thus it is expected that the majority of the participants would report lower values. Therefore, the two values show relative skewed and peaked distributions. The mean and standard deviation of suicide behaviour are respectively 34.77 and 36.90 in this study. In comparison with a similar study conducted in the Northern Cape Province, George (2005) reported a mean of 39.51 and a standard deviation of 36.14 for suicide behaviour. Through using a t-test the mean scores were compared. The critical value for the two tail test with a freedom grade of 1250 was 1.960. The calculated t-value was (t_{1252} = 2.295). Because 2.295 is greater (>) than 1.960 there is a significant difference in the two groups. The scores in this study are significantly lower than the scores of George (2005), which indicates that the participants in this study reported a generally lower degree of suicide behaviour. Furthermore, results from this study suggest that a total of 34.6% (N = 229)

of the total number (N = 662) of adolescents fell into the high risk group of suicide behaviour. Compared to other studies conducted amongst adolescents in different regions of South Africa, the incidence of suicide behaviour ranges from 19% to as high as 39% (George, 2009; Meehan et al., 2007; Tancred, 2010).

Because regression analysis was used in the sections below, the correlations between all the independent and dependent variables were calculated with Pearson's product moment correlation coefficients (displayed in Table 4).

Table 4

Correlation Coefficients Between the Stressors, Resources and Suicide Behaviour for the Total Group, the Two Genders and Three Racial Groups

Independent variables	Suicide behaviour					
	Total	Gender		Race		
	group (n=662)	Females (n=387)	Males (N=275)	Black (n=342)	Coloured (n=253)	White (n=67)
Stressors: Parents	0.356**	0.384**	0.250**	0.409**	0.331**	0.242
Family	0.223**	0.248**	0.072	0.262**	0.165**	0.223
School	0.348**	0.370**	0.275**	0.325**	0.375**	0.240
Friends	0.279**	0.283**	0.263**	0.212**	0.369**	0.068
Boy-/Girlfriend	0.175**	0.175**	0.167*	0.205**	0.154*	0.158
Resources: Parents	-0.245**	-0.253**	-0.214**	-0.167**	-0.293**	-0.420**
Family	-0.069	-0.076	-0.113	-0.030	-0.096	-0.199
School	-0.045	-0.064	-0.008	0.017	-0.067	-0.408**
Friends	-0.042	-0.030	-0.085	0.039	-0.085	-0.208
Boy-/Girlfriend	0.075	0.084	-0.024	0.142*	0.013	-0.298

** $p \leq 0.01$
* $p \leq 0.05$

With the exception of the correlation coefficient between ***stressors*** and suicide behaviour for the White adolescents, there is a marked correlation between the five stressor scales and suicide behaviour for the total group as well as the Black and Coloured adolescents on the 1% and 5% levels. The lack of significant correlation coefficients for the White adolescent group can be ascribed to the small group sample (n = 67) of participants. All the correlation coefficients are positive, which indicate that the higher an adolescent scored on the stressor scales, the higher the score was on suicide behaviour as well. These findings are supported by previous studies conducted in South Africa that found experienced stressors from parents, family, friends, school, and romantic relationships positively related to higher levels of suicide behaviour (Campbell, 2012; Du Plessis, 2012, George, 2009; Madu & Matla, 2003; Shilubane et al., 2014; Tancred, 2010).

With regard to the resource scales, the parents scale was the most significant on the 1% level that showed a high correlation with suicide behaviour. In this instance, the correlation coefficients are all negative, which indicate that the higher the adolescents scored on the parents scale, the lower the suicide behaviour tend to be. This only indicates that even though adolescents seem to move away from their primary family systems during adolescence, positive parent-child relationships and healthy attachment are still fundamental as a protective factor against suicide behaviour (Connor & Reuter, 2006; Laible, et al., 2004). Furthermore, it is also striking that, for the White adolescent group, there is a significant negative correlation (on the 1% level) between the resource scale, school and suicide behaviour. Even though the total sample of White adolescents (N = 67) was small, these results indicate that this group seems to have an increased sense of school connectedness, experiences less academic related stress, and has an overall positive perception that fellow learners and teachers are mostly supportive (Cheng et al., 2009; Kidger, Araya, Donovan, & Gunnell, 2012; Sun & Hui, 2007). This finding could also be influenced by disparities in socio-economic factors still present in post-apartheid South Africa, as the sample of White adolescents are from mostly affluent schools characterised by better access to resources and support (Özler, 2007).

However, the statistically significant coefficients must also be investigated in terms of practical significance of the coefficients. For this purpose, the following guideline of Steyn (2002) was used: 0.1 = small effect; 0.3 = medium effect, and 0.5 = large effect. With this guideline in mind, it is clear that the statistical significant coefficients display a small to medium effect size.

In the following section the results in terms of the research question are discussed.

Research question

A moderated hierarchical regression analysis were executed to investigate if a) gender and b) race moderates the relationship between psychosocial factors (all of the stressor and resource scales separately) and suicide behaviour.

Gender as a moderator

In Table 5, the results of the moderated hierarchical regression analysis are shown. In this analysis it was investigated whether gender moderated the relationship

between the five **stressors** (parents, family, school, friends, boy-/girlfriend) and suicide behaviour.

Table 5

*Moderating Effect of Gender in the Relationship between **Stressors** (Parents, Family, School, Friends and Boy-/Girlfriend) and Suicide Behaviour among Adolescents*

Model				Change Statistics				
	R	*R²*	Adjusted *R²*	*R²* Change	*F* Change	df1	df2	Sig. *F* Change
1	0.356	0.127	0.125	0.127	77.160	1	531	0.000
2	0.383	0.147	0.144	0.020	12.472	1	530	0.000
3	0.401	0.161	0.156	0.014	**8.819****	1	529	0.003
4	0.223	0.050	0.048	0.050	33.106	1	632	0.000
5	0.286	0.082	0.079	0.032	21.854	1	631	0.000
6	0.301	0.091	0.086	0.009	**6.336***	1	630	0.012
7	0.348	0.121	0.120	0.121	87.242	1	634	0.000
8	0.387	0.149	0.147	0.028	21.152	1	633	0.000
9	0.398	0.159	0.155	0.010	**6.972****	1	632	0.008
10	0.279	0.078	0.076	0.078	53.377	1	633	0.000
11	0.336	0.113	0.110	0.035	24.907	1	632	0.000
12	0.340	0.116	0.112	0.003	2.270	1	631	0.132
13	0.175	0.031	0.029	0.031	15.957	1	505	0.000
14	0.275	0.076	0.072	0.045	24.625	1	504	0.000
15	0.278	0.077	0.072	0.001	0.779	1	503	0.378

*** p ≤ 0.01*
** p ≤ 0.05*

Model 1: Parents
Model 2: Parents; gender
Model 3: Parents; gender; parents x gender
Model 4: Family
Model 5: Family; gender
Model 6: Family; gender; family x gender
Model 7: School
Model 8: School; gender
Model 9: School; gender; school x gender
Model 10: Friends
Model 11: Friends; gender
Model 12: Friends; gender; friends x gender
Model 13: Boy-/Girlfriend
Model 14: Boy-/Girlfriend; gender
Model 15: Boy-/Girlfriend; gender; boy-/girl x gender

The information from Table 5 shows the following changes in terms of the R^2-results, when the moderating effect of gender in the relationship between the five stressors and suicide behaviour is investigated:

Parents: $\Delta R^2 = 0.014$; $F_{(1;529)} = 8.819$; $p = 0.003$.

Family: $\Delta R^2 = 0.009$; $F_{(1;630)} = 6.336$; $p = 0.012$.

School: $\Delta R^2 = 0.010$; $F_{(1;632)} = 6.972$; $p = 0.008$.

Friends: $\Delta R^2 = 0.003$; $F_{(1;631)} = 2.270$; $p = 0.132$.

Boy-/Girlfriend: $\Delta R^2 = 0.001$; $F_{(1;503)} = 0.779$; $p = 0.378$.

The results from above indicate that gender moderates the relationship between **three stressors** and suicide behaviour among the adolescents specifically, **parents, family,** and **school.**

The stressor *parents* shows a significant correlation with suicide behaviour on the 1%-level of significance, $R^2 = 0.127$; $F_{(1;531)} = 77.160$; $p = 0.000$. Parents, as a stressor, explains about 13% of the variance in suicide behaviour among the adolescents. Due to the significant interaction that was found with Model 3 ($F_{(1;529)} = 8.819$; $p = 0.003$), it was determined that gender moderated this relationship and that this interaction accounted for an additional 1.4% of the variance in suicide behaviour. Together the parents stressor and the interaction with gender explain about 16.0% of the variance in suicide behaviour. These results are additionally followed up for Model 3, through calculating the standard weighted regression, *t*-values, *p*-values and semi-partial correlations of the independent variables. The following values were obtained ($\beta = -0.399$; $r = -0.193$; $t = -4.532$; $p = 0.003$). It is therefore clear that gender plays a significant role in the relationship between the stressor *parents* and suicide behaviour among the adolescents. To better understand the moderating effect of gender in this interaction, separate regression lines for the female and male adolescents were calculated. It is illustrated in Figure 1.

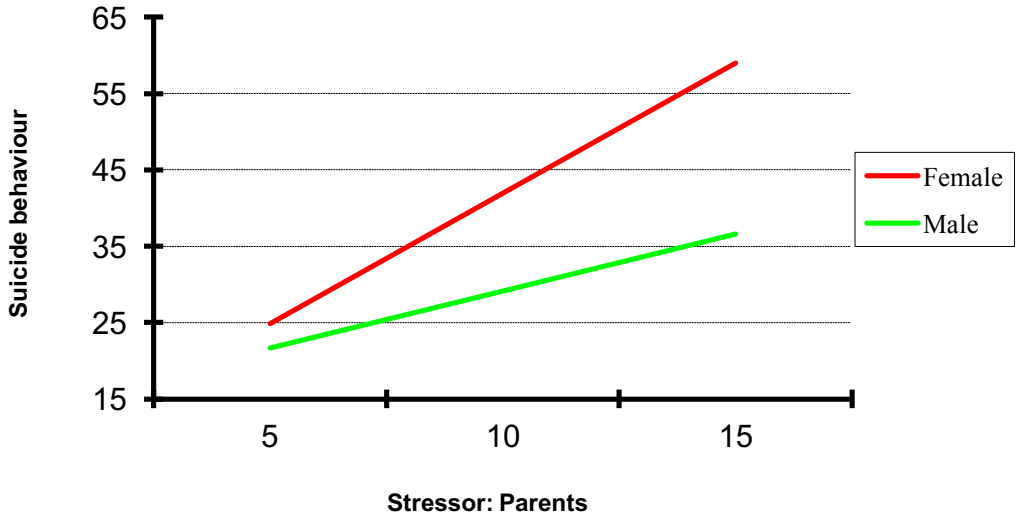

Figure 1. Regression lines for female and male adolescents with stressor (parents) as predictor variable of suicide behaviour among the adolescents

From Figure 1 it is evident that for the female adolescents there is a relatively rapid increase in the regression line (slope = 3.416) with a positive correlation ($r =$

0.384; p = 0.000) between parents stressor and suicide behaviour. For the male adolescents there is also an increase of the line (slope = 1.493) with a positive correlation (r = 0.250; p = 0.000) between the variables, but it is not as rapid as in comparison with the female adolescents. In summary, female adolescents, in comparison with their male counterparts, tend to show a higher increase in suicide behaviour when there is an increase in the parents stressor. It can also be observed that when both groups (female and male) experience low levels of parents stressor, they exhibit the same levels of suicide behaviour. Parents, as a stressor, were also significantly linked to adolescents reporting a high suicide behaviour risk and especially with parents who displayed high levels of psychological control (guilt induction, personal criticism, inconsistency) (Van Renen & Wild, 2008). Furthermore, the significant gender differences found in this study coincide with findings by Gilreath et al. (2009) and Kerr et al. (2006) who found parental conflict to be an important predictor of suicidal behaviour amongst especially female adolescents.

The stressor *family* shows a significant correlation with suicide behaviour on the 1% level of significance, R^2 = 0.050; $F_{(1;531)}$ = 33.106; p = 0.000. Family, as a stressor, explains about 5% of the variance in suicide behaviour among the adolescents. Due to the significant interaction that was found with Model 6 ($F_{(1;630)}$ = 6.336; p = 0.012), it was determined that gender moderated this relationship and that this interaction accounts for an additional 0.9% of the variance in suicide behaviour. Together the family stressor and the interaction with gender explain about 9% of the variance in suicide behaviour. These results are additionally followed up for Model 6, through calculating the standard weighted regression, t-values, p-values and semi-partial correlations of the independent variables. The following values were obtained: β = -0.305; r = -0.100; t = -2.517; p = 0.012. It is thus clear that gender plays a significant role in the relationship between the stressor *family* and suicide behaviour among the adolescents. To better understand the moderating effect of gender in this relationship, separate regression lines for the female and male adolescents were calculated. It is illustrated in Figure 2.

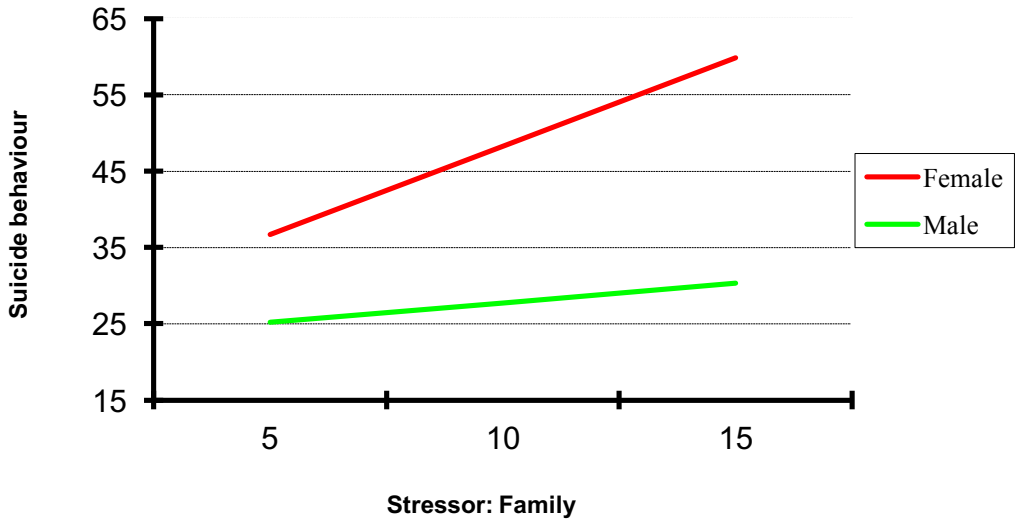

Figure 2. Regression lines for female and male adolescents with stressor (family) as predictor variable of suicide behaviour among the adolescents

From Figure 2 it is clear that for the female adolescents there are again a relatively rapid increase in the regression line (slope = 2.308) with a positive correlation ($r = 0.248$; $p = 0.000$) between the family stressor and suicide behaviour. For the male adolescents there is also a slight increase of the line (slope = 0.514) with an insignificant positive correlation ($r = 0.072$; $p = 0.248$) between the variables. In summary, female adolescents, in comparison with male adolescents, tend to show a higher increase in suicide behaviour when there is an increase in the family stressor. Even in the presence of relatively low levels on the family stressor subscale, it is apparent that the female adolescents, in comparison with male adolescents, display higher levels of suicide behaviour. The reason for the greater disparity among the two genders could be attributed to females being more socially connected and consequently more negatively impacted by stress and conflict in family relationships (Gilreath et al., 2009).

The stressor, *school* shows a significant correlation with suicide behaviour on the 1% level of significance, $R^2 = 0.121$; $F_{(1;634)} = 87.242$; $p = 0.000$. School, as a stressor, explains about 12% of the variance in suicide behaviour among the adolescents. Due to the significant interaction that was found with Model 9 ($F_{(1;632)} = 6.972$; $p = 0.008$), it was determined that gender moderates this relationship and that this interaction accounts for an additional 1.0% of the variance in suicide behaviour. Together the school stressor and the interaction with gender explain about 16.0% of the variance in suicide behaviour. These results are additionally followed up for Model 9,

through calculating the standard weighted regression, *t*-values, *p*-values and semi-partial correlations of the independent variables. The following values were obtained: β = -0.339; r = -0.104; t = -2.640; p = 0.008. It is thus evident that gender plays a significant role in the relationship between the stressor *school* and suicide behaviour among the adolescents. To better understand the moderating effect of gender in this relationship, separate regression lines for the female and male adolescents were calculated. It is illustrated in Figure 3.

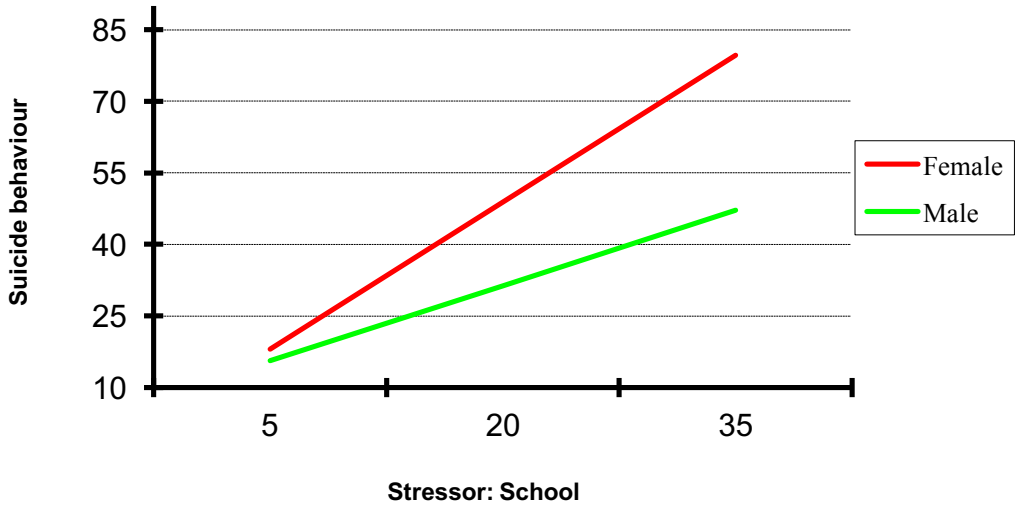

Figure 3. Regression lines for female and male adolescents with stressor (school) as predictor variable of suicide behaviour among the adolescents

In Figure 3 it is evident that for the female adolescents there is a relatively rapid increase in the regression line (slope = 2.053) with a positive correlation (r = 0.370; p = 0.000) between the school stressor and suicide behaviour. For the male adolescents there is also an increase of the line (slope = 1.053) with a positive correlation (r = 0.275; p = 0.000) between the variables but in comparison with the female adolescents it is not as rapid. In summary, female adolescents, in comparison with the male adolescents, tend to show a higher increase in suicide behaviour when there is an increase in the school stressor. It can also be observed that when both groups (female and male) experience low levels of the school stressor, they exhibit relatively the same levels of suicide behaviour. This finding coincides with results from a recent study conducted by Dhull and Kumari (2015), where female adolescents reported more academic and school stress than the male participants. This means that there could be more pressure on females to perform at school, or that, due to the value they put on interpersonal

relationship factors, such as being bullied, conflict with teachers and peers, and/or experiencing punishment from teachers, increase their vulnerability towards suicide behaviour (Ang & Huan, 2006; Gagnon et al., 2009; Peltzer & Pengpid, 2012; Shilubane et al., 2014).

A moderated hierarchical regression analysis was executed to investigate if gender moderates the relationship between the five resources (parents, family, school, friends, boy-/girlfriend) and suicide behaviour. The results are shown in Table 6.

Table 6

*Moderating Effect of Gender in the Relationship between **Resources** (Parents, Family, School, Friends and Boy-/Girlfriend) and Suicide Behaviour among Adolescents*

Model				Change Statistics				
	R	*R²*	Adjusted *R²*	*R²* Change	*F* Change	df1	df2	Sig. *F* Change
1	0.245	0.060	0.058	0.060	34.662	1	545	0.000
2	0.307	0.094	0.091	0.034	20.529	1	544	0.000
3	0.312	0.097	0.092	0.003	1.972	1	543	0.161
4	0.069	0.005	0.003	0.005	3.020	1	629	0.083
5	0.229	0.052	0.049	0.047	31.435	1	628	0.000
6	0.229	0.052	0.048	0.000	0.002	1	627	0.969
7	0.045	0.002	0.000	0.002	1.313	1	638	0.252
8	0.208	0.043	0.040	0.041	27.440	1	637	0.000
9	0.210	0.044	0.040	0.001	0.660	1	636	0.417
10	0.042	0.002	0.000	0.002	1.121	1	629	0.290
11	0.212	0.045	0.042	0.043	28.485	1	628	0.000
12	0.213	0.045	0.041	0.000	0.132	1	627	0.717
13	0.075	0.006	0.004	0.006	2.870	1	502	0.091
14	0.225	0.050	0.047	0.045	23.627	1	501	0.000
15	0.231	0.054	0.048	0.003	1.619	1	500	0.204

** $p \leq 0.01$
* $p \leq 0.05$

Model 1: Parents
Model 2: Parents; gender
Model 3: Parents; gender; parents x gender
Model 4: Family
Model 5: Family; gender
Model 6: Family; gender; family x gender
Model 7: School
Model 8: School; gender
Model 9: School; gender; school x gender
Model 10: Friends
Model 11: Friends; gender
Model 12: Friends; gender; friends x gender
Model 13: Boy-/Girlfriend
Model 14: Boy-/Girlfriend; gender
Model 15: Boy-/Girlfriend; gender; boy-/girl x gender

The information from Table 6 shows the following changes in terms of the R^2-results, when the moderating effect of gender in the relationship between the five resources and suicide behaviour among the adolescents is investigated:

Parents: $\Delta R^2 = 0.003$; $F_{(1;543)} = 1.972$; $p = 0.161$.

Family: $\Delta R^2 = 0.000$; $F_{(1;627)} = 0.002$; $p = 0.969$.

School: $\Delta R^2 = 0.001$; $F_{(1;636)} = 0.660$; $p = 0.417$.

Friends: $\Delta R^2 = 0.000$; $F_{(1;627)} = 0.132$; $p = 0.717$.

Boy-/Girlfriend: $\Delta R^2 = 0.003$; $F_{(1;500)} = 1.619$; $p = 0.204$.

The above results indicate that gender does not succeed to moderate any of the five relationships. Hence, the results are not discussed.

Race (Black vs White) as a moderator

A moderated hierarchical regression analysis was performed to investigate if race (Black vs White) moderates the relationship between the five stressors (parents, family, school, friends, boy-/girlfriend) and suicide behaviour. The results are shown in Table 7.

Table 7

*Moderating Effect of Race (Black Vs White) in the Relationship between **Stressors** (Parents, Family, School, Friends and Boy-/Girlfriend) and Suicide Behaviour among Adolescents*

Model				Change Statistics				
	R	*R²*	Adjusted *R²*	*R²* Change	*F* Change	df1	df2	Sig. *F* Change
1	0.356	0.127	0.125	0.127	77.160	1	531	0.000
2	0.357	0.128	0.124	0.001	0.493	1	530	0.483
3	0.363	0.132	0.127	0.004	2.704	1	529	0.101
4	0.223	0.050	0.048	0.050	33.106	1	632	0.000
5	0.231	0.053	0.050	0.003	2.350	1	631	0.126
6	0.234	0.055	0.050	0.002	0.949	1	630	0.330
7	0.348	0.121	0.120	0.121	87.242	1	634	0.000
8	0.351	0.123	0.120	0.002	1.469	1	633	0.226
9	0.352	0.124	0.120	0.001	0.503	1	632	0.479
10	0.279	0.078	0.076	0.078	53.377	1	633	0.000
11	0.283	0.080	0.077	0.002	1.607	1	632	0.205
12	0.291	0.085	0.080	0.005	3.157	1	631	0.076
13	0.175	0.031	0.029	0.031	15.957	1	505	0.000
14	0.204	0.042	0.038	0.011	5.819	1	504	0.016
15	0.206	0.042	0.037	0.001	0.335	1	503	0.563

*** p ≤ 0.01*

** p ≤ 0.05*

Model 1: Parents
Model 2: Parents; race
Model 3: Parents; race; parents x race

Model 4: Family
Model 5: Family; race
Model 6: Family; race; family x race

Model 7: School
Model 8: School; race
Model 9: School; race; school x race

Model 10: Friends
Model 11: Friends; race
Model 12: Friends; race; friends x race

Model 13: Boy-/Girlfriend
Model 14: Boy-/Girlfriend; race
Model 15: Boy-/Girlfriend; race; boy/girl x race

The information from Table 7 shows the following changes in terms of the R^2-results when the moderating effect of race (Black vs White) in the relationship between the five stressors and suicide behaviour among the adolescents is investigated:

Parents: $\Delta R^2 = 0.004$; $F_{(1;529)} = 2.704$; $p = 0.101$.
Family: $\Delta R^2 = 0.002$; $F_{(1;630)} = 0.949$; $p = 0.330$.
School: $\Delta R^2 = 0.001$; $F_{(1;632)} = 0.503$; $p = 0.479$.
Friends: $\Delta R^2 = 0.005$; $F_{(1;631)} = 3.157$; $p = 0.076$.
Boy-/Girlfriend: $\Delta R^2 = 0.001$; $F_{(1;503)} = 0.335$; $p = 0.563$.

The above results indicate that race (Black vs White) does not succeed to moderate any of the five relationships. Hence the results are not discussed.

A moderated hierarchical regression analysis was performed to investigate if race (Black vs White) moderates the relationship between the five resources (parent, family, school, friends, boy-/girlfriend) and suicide behaviour. The results are shown in Table 8.

Table 8

Moderating Effect of Race (Black Vs White) in the Relationship between ***Resources*** *(Parents, Family, School, Friends and Boy-/Girlfriend) and Suicide Behaviour among Adolescents*

Model				Change Statistics				
	R	R^2	Adjusted R^2	R^2 Change	*F* Change	df1	df2	Sig. *F* Change
1	0.245	0.060	0.058	0.060	34.662	1	545	0.000
2	0.254	0.064	0.061	0.005	2.687	1	544	0.102
3	0.264	0.070	0.065	0.005	3.199	1	543	0.074
4	0.069	0.005	0.003	0.005	3.020	1	629	0.083
5	0.077	0.006	0.003	0.001	0.757	1	628	0.385
6	0.087	0.008	0.003	0.002	0.978	1	627	0.323
7	0.045	0.002	0.000	0.002	1.313	1	638	0.252
8	0.066	0.004	0.001	0.002	1.479	1	637	0.224
9	0.090	0.008	0.003	0.004	2.422	1	636	0.120
10	0.042	0.002	0.000	0.002	1.121	1	629	0.290
11	0.068	0.005	0.001	0.003	1.822	1	628	0.178
12	0.108	0.012	0.007	0.007	**4.503***	1	627	0.034
13	0.075	0.006	0.004	0.006	2.870	1	502	0.091
14	0.115	0.013	0.009	0.008	3.816	1	501	0.051
15	0.138	0.019	0.013	0.006	2.923	1	500	0.088

*** p ≤ 0.01*
** p ≤ 0.05*

Model 1: Parents
Model 2: Parents; race
Model 3: Parents; race; parents x race
Model 4: Family
Model 5: Family; race
Model 6: Family; race; family x race
Model 7: School
Model 8: School; race
Model 9: School; race; school x race
Model 10: Friends
Model 11: Friends; race
Model 12: Friends; race; friends x race
Model 13: Boy-/Girlfriend
Model 14: Boy-/Girlfriend; race
Model 15: Boy-/Girlfriend; race; boy/girl x race

The information from Table 8 shows the following changes in terms of the R^2-results when the moderating effect of race (Black vs White) in the relationship between the five resources and suicide behaviour among the adolescents is investigated:

Parents: $\Delta R^2 = 0.005$; $F_{(1;529)} = 3.199$; $p = 0.074$.

Family: $\Delta R^2 = 0.002$; $F_{(1;630)} = 0.978$; $p = 0.323$.

School: $\Delta R^2 = 0.004$; $F_{(1;632)} = 2.422$; $p = 0.120$.

Friends: $\Delta R^2 = 0.007$; $F_{(1;631)} = 4.503$; $p = 0.034$.

Boy-/Girlfriend: $\Delta R^2 = 0.006$; $F_{(1;503)} = 2.923$; $p = 0.088$.

The above results indicate that race (Black vs White) moderates one of the relationships between resources and suicide behaviour among the adolescents. This is the resource, *friends*, that does not show a significant relationship between the resources and suicide behaviour on the 1% level of significance, $R^2 = 0.002$; $F_{(1;531)}$ 1.121; $p =$ 0.290. Friends, as a resource, only explains 0.2% of the variance in suicide behaviour

among the adolescents. Due to the significant interaction that was obtained with Model 12, ($F_{(1;627)}$ = 4.503; p = 0.034), it was determined that race (Black vs White) indeed moderates this relationship and that this interaction accounts for an additional 0.7% of the variance in suicide behaviour. Together, friends as resource and the interaction of it with race account for about 1.2% of the variance in suicide behaviour. This result was further explored for Model 12, through calculating the standard weighted regression, t-values, p-values and semi-partial correlations of the independent variables. The following values were obtained: β = 0.301; r = 0.084; t = 2.122; p = 0.034. From the results is can be seen that race (Black vs White) reports a significant interaction in the relationship between the resource *friends* and suicide behaviour among the adolescents. To better understand the moderating effect of race in the relationship between friends as a resource and suicide behaviour among the adolescents, separate regression lines for the Black and White adolescents were calculated. It is illustrated in Figure 4.

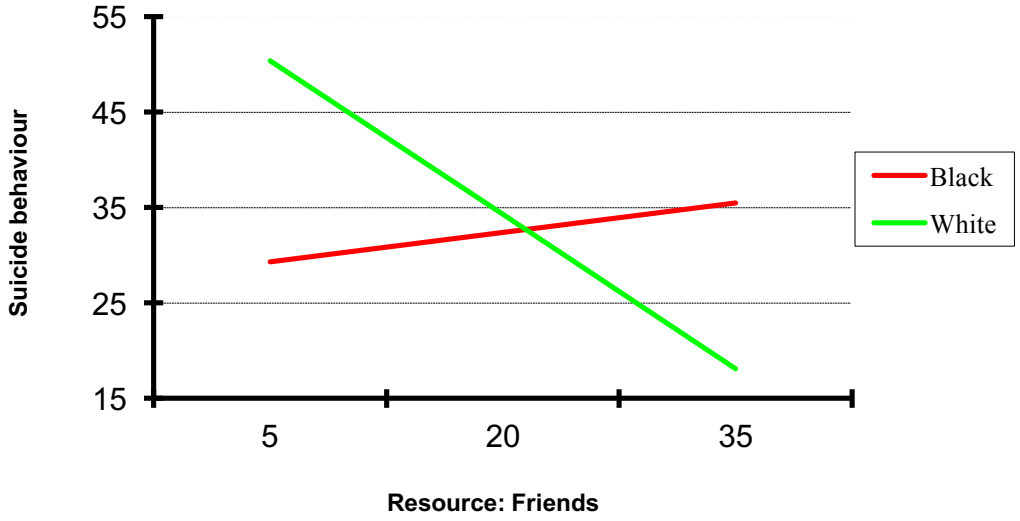

Figure 4. Regression lines of the Black and White adolescents with the resource (friends) as predictor variable of suicide behaviour among the adolescents

It is evident from Figure 4 that there are two different profiles for the two racial groups. First, it can be observed that for the Black adolescents there is a very small incline in the regression line (slope = 0.205) with a small positive correlation (r = 0.039; p = 0.486) between friends as resource and suicide behaviour. However, for the White adolescents there is a relative rapid decline (scope = -1.076) of the line with a negative correlation (r = -0.208; p = 0.091) between the variables. This means that

where suicide behaviour of the Black adolescents stays about the same with an increase in friends as resource, the White adolescents show a large decrease in suicide behaviour with an increase of friends as resource. Therefore, friends as a resource plays an important role in the suicide behaviour of the White adolescents in comparison with the Black group. A study conducted by Basson (2008) also shows that White adolescents viewed friends as a greater resource than the Black adolescent group. The racial difference in that particular study was contributed to White adolescents, being from a more Westernised individualistic culture, tending to focus on support outside their family, i.e. friends. In comparison, the associated collectivistic culture of the Black group still seeks greater support from their parents and family (Basson, 2008).

Race (Coloured vs White) as a moderator

A moderated hierarchical regression analysis was performed to investigate if race (Coloured vs White) moderates the relationship between the five stressors (parents, family, school, friends, boy-/girlfriend) and suicide behaviour. The results are shown in Table 9.

Table 9

*Moderating Effect of Race (Coloured Vs White) in the Relationship between **Stressors** (Parents, Family, School, Friends and Boy-/Girlfriend) and Suicide Behaviour among Adolescents*

Model				Change Statistics				
	R	*R²*	Adjusted *R²*	*R²* Change	*F* Change	df1	df2	Sig. *F* Change
1	0.356	0.127	0.125	0.127	77.160	1	531	0.000
2	0.368	0.136	0.132	0.009	5.445	1	530	0.020
3	0.369	0.136	0.131	0.000	0.253	1	529	0.615
4	0.223	0.050	0.048	0.050	33.106	1	632	0.000
5	0.240	0.058	0.055	0.008	5.324	1	631	0.021
6	0.245	0.060	0.055	0.002	1.472	1	630	0.226
7	0.348	0.121	0.120	0.121	87.242	1	634	0.000
8	0.355	0.126	0.123	0.005	3.762	1	633	0.053
9	0.356	0.127	0.123	0.001	0.659	1	632	0.417
10	0.279	0.078	0.076	0.078	53.377	1	633	0.000
11	0.290	0.084	0.081	0.006	4.332	1	632	0.038
12	0.301	0.091	0.087	0.007	**4.755***	1	631	0.030
13	0.175	0.031	0.029	0.031	15.957	1	505	0.000
14	0.203	0.041	0.037	0.011	5.566	1	504	0.019
15	0.204	0.042	0.036	0.001	0.283	1	503	0.595

** $p \leq 0.01$
* $p \leq 0.05$

Model 1: Parents
Model 2: Parents; race
Model 3: Parents; race; parents x race

Model 4: Family
Model 5: Family; race
Model 6: Family; race; family x race

Model 7: School
Model 8: School; race
Model 9: School; race; school x race

Model 10: Friends
Model 11: Friends; race
Model 12: Friends; race; friends x race

Model 13: Boy-/Girlfriend
Model 14: Boy-/Girlfriend; race
Model 15: Boy-/Girlfriend; race; boy/girl x race

The information from Table 9 shows the following changes in terms of the R^2-results when the moderating effect of race (Coloured vs White) in the relationship between the five stressors and suicide behaviour among the adolescents is investigated:

Parents: $\Delta R^2 = 0.000$; $F_{(1;529)} = 0.253$; $p = 0.615$.

Family: $\Delta R^2 = 0.002$; $F_{(1;630)} = 1.472$; $p = 0.226$.

School: $\Delta R^2 = 0.001$; $F_{(1;632)} = 0.659$; $p = 0.417$.

Friends: $\Delta R^2 = 0.007$; $F_{(1;631)} = 4.755$; $p = 0.030$.

Boy-/Girlfriend: $\Delta R^2 = 0.001$; $F_{(1;503)} = 0.283$; $p = 0.595$.

The above results indicate that race (Coloured vs White) moderates one of the relationships between stressors and suicide behaviour among the adolescents. This is the stressor *friends*, that shows a significant correlation with suicide behaviour on the 1% level of significance, $R^2 = 0.078$, $F_{(1;633)} = 53.377$; $p = 0.000$. Friends, as a stressor, explains about 8% of the variance in suicide behaviour among the adolescents. Due to the significant interaction that was obtained with Model 12, ($F_{(1;631)} = 4.755$; $p = 0.030$),

it was determined that race (Coloured vs White) indeed moderates this relationship and that this interaction accounts for an additional 0.7% of the variance in suicide behaviour. Combined, friends as a stressor and the interaction of it with race, account for about 1.2% of the variance in suicide behaviour. This result was further explored for Model 12 through calculating the standard weighted regression, *t*-values, *p*-values and semi-partial correlations of the independent variables. The following values were obtained (β = 0.178; r = 0.086; t = 2.181; p = 0.030). It is thus evident that race (Coloured vs White) plays a significant role in the relationship between the stressor *friends* and suicide behaviour among the adolescents. To better understand the moderating effect of race in the relationship between friends as a stressor and suicide behaviour among the adolescents, separate regression lines for the Coloured and White adolescents were calculated. It is illustrated in Figure 5.

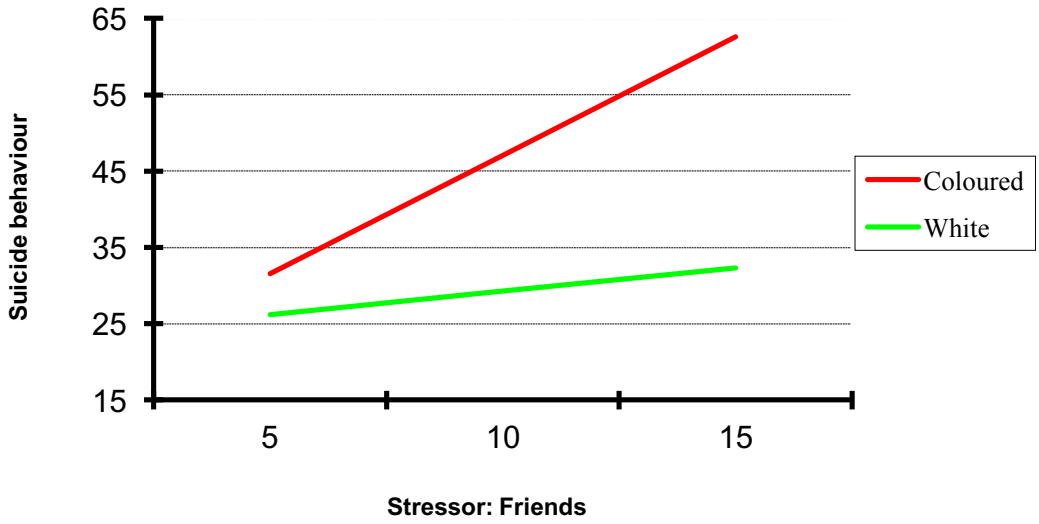

Figure 5. Regression lines of the Coloured and White adolescents with the stressor (friends) as predictor variable of suicide behaviour among the adolescents

From Figure 5 it is clear that for the Coloured adolescents there is a relatively rapid increase in the regression line (slope = 3.108) with a positive correlation (r = 0.369; p = 0.000) between friends as stressor and suicide behaviour. For the White adolescents there is a much smaller increase in the line (slope = 0.616) with a small positive correlation (r = 0.068; p = 0.587) between the variables. Consequently, there is not such a rapid incline in the regression line for the White adolescents in comparison to the Coloured adolescents. In summary, it seems that for the Coloured adolescents, in comparison with the White adolescents, there is a much higher increase in suicide behaviour when there is an increase of friends as a stressor. It is also evident that when

both groups (Coloured and White) experience relatively low levels of friends as a stressor, they display relatively the same levels of suicide behaviour. Since friendships are viewed as important indicators regarding an adolescent's level of popularity, social status and self-concept, a loss or conflict of a friendship could increase the risk towards suicide behaviour (Buitron et al., 2016; Daniel & Goldston, 2012; Gagnon et al., 2009; Laible et al., 2004). In a similar study conducted in the Northern Cape Province, Coloured adolescents found their relationships with friends to also be one of the main stressors (Du Plessis, 2012). This could mean that Coloured adolescents tend to rely on their friendships more than other sources of support and that any conflict or stress in those friendships affect them negatively, hence increasing their vulnerability towards suicide behaviour.

A moderated hierarchical regression analysis was performed to investigate if race (Coloured vs White) moderates the relationship between the five resources (parents, family, school, friends, boy-/girlfriend) and suicide behaviour. The results are shown in Table 10**.**

Table 10

*Moderating Effect of Race (Coloured Vs White) in the Relationship between **Resources** (Parents, Family, School, Friends and Boy-/Girlfriend) and Suicide Behaviour among Adolescents*

Model				Change Statistics				
	R	*R²*	Adjusted *R²*	*R²* Change	*F* Change	df1	df2	Sig. *F* Change
1	0.245	0.060	0.058	0.060	34.662	1	545	0.000
2	0.266	0.071	0.068	0.011	6.531	1	544	0.011
3	0.269	0.072	0.067	0.001	0.832	1	543	0.362
4	0.069	0.005	0.003	0.005	3.020	1	629	0.083
5	0.110	0.012	0.009	0.007	4.680	1	628	0.031
6	0.113	0.013	0.008	0.001	0.360	1	627	0.549
7	0.045	0.002	0.000	0.002	1.313	1	638	0.252
8	0.109	0.012	0.009	0.010	6.353	1	637	0.012
9	0.111	0.012	0.008	0.000	0.297	1	636	0.586
10	0.042	0.002	0.000	0.002	1.121	1	629	0.290
11	0.108	0.012	0.009	0.010	6.279	1	628	0.012
12	0.115	0.013	0.009	0.002	1.029	1	627	0.311
13	0.075	0.006	0.004	0.006	2.870	1	502	0.091
14	0.123	0.015	0.011	0.009	4.744	1	501	0.030
15	0.134	0.018	0.012	0.003	1.453	1	500	0.229

*** p ≤ 0.01*
** p ≤ 0.05*

Model 1: Parents
Model 2: Parents; race
Model 3: Parents; race; parents x race
Model 4: Family
Model 5: Family; race
Model 6: Family; race; family x race
Model 7: School
Model 8: School; race
Model 9: School; race; school x race
Model 10: Friends
Model 11: Friends; race
Model 12: Friends; race; friends x race
Model 13: Boy-/Girlfriend
Model 14: Boy-/Girlfriend; race
Model 15: Boy-/Girlfriend; race; boy/girl x race

The information from Table 10 shows the following changes in terms of the R^2-results, when the moderating effect of race (Coloured vs White) in the relationship between the five resources and suicide behaviour among the adolescents is investigated:

Parents: $\Delta R^2 = 0.001$; $F_{(1;529)} = 0.832$; $p = 0.362$.

Family: $\Delta R^2 = 0.001$; $F_{(1;630)} = 0.360$; $p = 0.549$.

School: $\Delta R^2 = 0.000$; $F_{(1;632)} = 0.297$; $p = 0.586$.

Friends: $\Delta R^2 = 0.002$; $F_{(1;631)} = 1.029$; $p = 0.311$.

Boy-/Girlfriend: $\Delta R^2 = 0.003$; $F_{(1;503)} = 1.453$; $p = 0.229$.

The results from above indicate that race (Coloured vs White) does not moderate the relationship between any of the five resources and suicide behaviour. Hence, the results are not discussed.

Conclusion

The primary objective of this study was to compare a South African sample of

female and male, Black, Coloured and White adolescents to investigate whether gender and race had a moderating effect in the relationship between psychosocial factors (interpersonal stressors and resources) and suicide behaviour. Results showed that the measuring scales used in this study provided sufficient reliability with coefficients all being above the 0.7 cut-off for social sciences (Lance et al., 2006).

The results of the study suggest that 34.6% adolescents fell into the high-risk group of suicide behaviour as measured by the reported level of suicidal ideation. Compared to other studies conducted amongst adolescents in different regions of South Africa, the incidence of suicide behaviour ranges from 19% to as high as 39% (George, 2009; Meehan et al., 2007; Tancred, 2010). The differences observed in the various provinces might be related to disparities in the socio-economic factors of the participants that might have exerted an influence on them. Despite the variances, the current study reflects the concern of several researchers about the overall high prevalence of suicide behaviour among South African adolescents (Reddy et al., 2013; Schlebusch, 2005; 2012; Shilubane et al., 2013).

The main contribution of this study is that it has proven that interpersonal stressors and resources indeed play a very important role in the outcome of suicide behaviour among adolescents. Generally, for the total group of participants, all five stressors (parents, family, friends, school, boyfriend/girlfriend) showed a strong correlation with higher levels of suicide behaviour with more pronounced positive correlations for the Black and Coloured adolescents. Pertaining to sources of support, the resource parents seems to be a major protective factor against suicide behaviour among the adolescents. Positive parent-child attachment, authoritative parenting (warm, firm, realistic expectations) and support that encourages the healthy autonomy of the adolescent have been found to improve psychological functioning in general and decrease suicidal risk behaviour (Connor & Reuter, 2006; Seiffge-Krenke, Kiuru, & Nurmi, 2010). In summary, these results reflect the immense value an adolescent still places on interpersonal relationships for support, acceptance and belonging (Laible et al., 2004). Furthermore, it shows that interpersonal conflicts that may result in a sense of isolation, rejection, and feelings of disconnectedness can be viewed as a significant challenge amongst adolescents at risk for suicide (Buitron et al., 2016).

Another contribution of this study is the gender differences in the reported interpersonal stressors and resources. Concerning gender differences, three stressors (parents, family, school) showed a marked correlation with higher levels of suicide behaviour amongst both males and females, but significantly more among the females. This is supported in the literature that places adolescent females at a higher risk for suicide behaviour when they experience stress or conflict in relationships with their parents, families and school environment (Ang & Huan, 2006; Gagnon et al., 2009; Gilreath et al., 2009; Kerr et al., 2006; Peltzer & Pengpid, 2012; Shilubane et al., 2014).

Interestingly, friends as a stressor was found to be more significant for the Coloured adolescents than the White participants. Friendships characterised by conflict and stress can increase the risk of suicide behaviour significantly as it can negatively influence the adolescent's sense of belonging, popularity, social status, and self-concept (Buitron et al., 2016; Daniel & Goldston, 2012; Laible et al., 2004). In contrast, friends as a resource was significant for both Black and White adolescents, but more significantly linked with lower levels of suicide behaviour among the White adolescents. These findings can reflect the trend of individualistic versus collectivistic cultures, where White adolescents move more easily away from family as support and find it in friendships. Even though Black adolescents (more associated with a collectivistic culture) are also moving towards the individualistic culture due to acculturation, they might still prefer more support from parents and family structures (Möller-Leimkühler, 2003; Schlebusch et al., 2003).

School as a resource seems to play a major buffering effect against suicide behaviour, especially amongst the White adolescents. Even with a small sample (N = 67) compared to the other groups, these results indicate that the school environment consisting of peers and teachers, are experienced as positive and supportive (Kidger et al., 2012; Sun & Hui, 2007). It also needs to be taken into consideration that disparities in socio-economic factors among the different race groups can account for this finding. The majority of White adolescents in post-apartheid South Africa still find themselves in affluent schools with better resources and support compared to the Black and Coloured adolescents (Özler, 2007).

Limitations and recommendations

In the interpretation of the results of this study the following limitations should be considered:

1. The current study was conducted in one region of South Africa; therefore, findings of the current study can only be generalised to adolescents with a similar background. Specifically, the sample of White adolescents was under represented in the current study so it is difficult to attribute results from this group as representative of the majority of White adolescents in South Africa.
2. Copyright regulations prohibited the researcher to translate the questionnaires in the preferred language of the participants. This means that Westernised measuring instruments were used to assess experienced stressors and resources as well as suicide behaviour among the adolescents. This could have influenced their understanding of questions and responses. There is a great need for these measures to have increased reliability, validity and culture-relevance in South Africa (Maree, 2008).
3. This study focused only on the moderating role of gender and race in the relationship between interpersonal stressors and resources and suicide behaviour. A further gender by race analysis could also yield interesting results.
4. A correlational methodology was used in this study to explore a possible causal relationship between the different variables. Longitudinal studies would be beneficial in order to further explore the effects of interpersonal stressors and resources on suicide behaviour for the different gender and racial groups among South African adolescents.
5. Qualitative studies could also provide an in-depth understanding of the dynamics playing a role in the experience of adolescents in their interpersonal relationships and how it influences suicide behaviour.
6. This study determined the incidence of suicide behaviour by measuring the level of suicidal ideation among a general sample of adolescents and did not distinguish between those that had been directly involved in suicide attempts. This may have limited the study of valuable information with regard to the dynamics involved in suicide behaviour. Therefore, future research would benefit by using a sample of adolescents who have attempted suicide to gain a

better understanding of the variables incorporated in this study.

The recommendations made on the results from this study are that research on adolescent suicide behaviour aimed at exploring the dynamics involved should be a continuous process. The replication of the results in relation to other South African research emphasises the importance of gender and race sensitivity in understanding adolescent suicide behaviour in South Africa. As more provinces in South Africa are represented through research studies shedding light on the various psychosocial factors involved in the increasing rate of adolescent suicide, a more unified approach to prevention and intervention is plausible (Schlebusch, 2012; Shilubane et al., 2013). Specifically, gender and race differences regarding experienced social stressors and resources should be taken into account when developing and implementing suicide prevention programmes. The implementation of programmes aimed at enhancing social support and skills for adolescents, parents, families, and teachers is also recommended.

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ARTICLE 2
THE RELATIONSHIP BETWEEN EMOTIONAL INTELLIGENCE AND SUICIDE BEHAVIOUR AMONG SOUTH AFRICAN ADOLESCENTS

Abstract

Worldwide the emotional health of adolescents is viewed as vital for their general mental health and psychological well-being. With the global concern for the increase in suicide behaviour among adolescents, international and local research has suggested deficits in emotional and social competencies as important risk factors for the outcome in adolescent suicide behaviour. This raises the question whether emotional intelligence (EI), consisting of various emotional and social skills, can act as a possible protective factor against suicide behaviour. This study therefore aimed to explore if there is a relationship between emotional intelligence and suicide behaviour among a South African sample of adolescents. A further objective was to ascertain whether gender and racial differences moderated this relationship between EI and suicide behaviour. A quantitative, correlational methodology was followed with a stratified random sample of 662 grade 10-12 learners from schools across the Eden district, Western Cape Province. Adolescents completed a biographical questionnaire, the Suicidal Ideation

Questionnaire (SIQ, Adolescent Version) and the Bar-On Emotional Quotient Inventory, Youth Version (Bar-On EQI). The total sample of adolescents (N = 229) with a high suicide risk brings the incidence of suicide behaviour to 34.6% for the current study. The total group also reported higher levels of emotional intelligence in comparison to normative samples conducted by Bar-On and Parker (2000) and Koen (2008). The unique contribution of the present study is the finding that stress management had the most significant negative correlation with suicide behaviour among the total group of adolescents. Results from the moderated hierarchical regression analysis suggest no gender differences between emotional intelligence and suicide behaviour. Racial differences were found among the Black and White adolescents on the total EI score. For the White group a higher total EI score was found indirectly proportional to suicide behaviour compared to the Black group. The group of White adolescents also reported a strong negative correlation with general mood and suicide behaviour. In summary, the overall findings point towards the protective nature of emotional intelligence in decreasing the risk among adolescents to engage in suicide behaviour. Furthermore, it suggests that cultural factors need to be considered. The main recommendation of this study is that it has favourable implications for EI development, not only for healthy adolescent development, but also in the incorporation of suicide prevention and intervention strategies.

Keywords: suicide behaviour; adolescents; emotional intelligence, gender differences, racial differences, moderating effect, South Africa.

The escalation of adolescent suicide behaviour[1] has been receiving considerable attention both internationally and nationally (Schlebusch, 2012). According to the World Health Organization (WHO) (2012), suicide completions account for 8.5% of all global deaths among young adults of 15−29 years of age and are ranked as the second leading cause of death. Annually South Africa has 160 000 attempted suicides across all age groups of 15-44 years of age, with one-third being among the adolescent population aged 15-19 years of age (Burrows & Laflamme, 2007). The high statistics signify a need for adolescents to learn how to cope with life stressors, regulate their emotions and resolve conflict more effectively (George & Van den Berg, 2012; Schlebusch, 2005). Various studies have identified major protective factors for suicide among adolescents (Bar-On, 2006; 2007; Everall, Altrows, & Paulson, 2006). These factors include, amongst other, an ability to effectively manage any changes on a personal, social, or environmental level. Employing successful problem solving and stress management, good interpersonal communication and effective emotional regulation are also amongst these factors (Bar-On, 2006; 2007; Everall et al., 2006). Bar-On and Parker (2000) have suggested that emotional intelligence (EI) is a vital factor in determining the adolescent's ability to succeed in life.

Although research on EI among adolescents is still relatively new, certain studies have found EI directly influences an adolescent's general psychological and physical well-being (Davis & Humphrey, 2012; Martins, Ramalho, & Morin, 2010; Mayer, Roberts, & Barsade, 2008 Resurrección, Salguero, & Ruiz-Aranda, 2014). With regard to the correlation between EI and suicide behaviour, only a few studies investigated the role of EI as a protective factor against suicide behaviour among adolescents (Cha & Nock, 2009; Ciarrochi, Deane, & Anderson, 2002; Mikolajczak, Petrides, & Hurry, 2009; Motahari & Rahgozar, 2011). Within the South African context there are no studies documenting the relationship between the construct EI and adolescent suicide behaviour; however, certain personal factors, such as self-esteem, hope, optimism, and sense of coherence have been explored (George, 2009; George & Van den Berg, 2012; Kruger, 2010; Tancred, 2010; Wild, Flisher, Bhana, & Lombard, 2004). Furthermore, growing interest in the concept of EI has led researchers to

[1] In the current study suicide behaviour is used as a collective term referring to a continuum of self-destructive thoughts and behaviour ranging from suicidal ideation, suicide attempts and completed suicide. As suicidal ideation has been proved to be an important predictor for suicide risk behaviour among adolescents it was therefore measured in this study.

examine not only its influence in various areas of psychological functioning and mental health, but to determine whether gender and racial differences also exist (Bar-On & Parker, 2000; Grewal & Salovey, 2005; Harrod & Scheer, 2005; Koen, 2008; Moon, 2011).

In considering gender and racial differences in EI and adolescent suicide behaviour, a limited number of international studies were found, while no studies incorporating the South African context could be traced (EBSCO and associate databases, Google Scholar and NiPAD, 12 October 2016). This highlights the need for further research exploring the relationship between EI and suicide behaviour, considering gender and racial differences.

Increased knowledge of the emotional intelligence variables that influence suicide behaviour among South African adolescents will allow for better understanding of this phenomenon. This will also have favourable implications for EI development in suicide prevention and intervention strategies across the different gender and racial groups.

In the following section the role of emotional intelligence in adolescent suicide behaviour is discussed.

Emotional intelligence and adolescent suicide behaviour

Various studies indicated that EI plays a protective role in the management of perceived stress, depression, hopelessness, and suicidal thoughts among adolescents (Cha & Nock, 2009; Ciarrochi et al., 2002; Downey, Johnston, Hansen, Birney, & Stough, 2010; Mikolajczak et al., 2009). A distinction was found among adolescents with high and low EI and their risk of suicide behaviour. For instance, adolescents with high EI are likely to perceive stressful events as challenges, they make use of more adaptive active coping strategies, and are optimistic when compared to adolescents with low EI (Cha & Nock, 2009; Downey et al., 2010; Mikolajczak et al., 2009). All these factors tend to reduce the negative mood and thought states associated with suicide behaviour, such as depression, hopelessness, and helplessness (Davis & Humphrey, 2012; Mikolajczak & Luminet, 2008).

To explore the influence of EI on the outcome of suicide behaviour among

adolescents, the Bar-On model of socio-emotional intelligence was used. The Bar-On model for adolescents has been extensively validated in research and found to be the most comprehensive conceptualisation of EI (Bharwaney, Bar-On, & MacKinlay, 2011).

This model (See Figure 1) suggests five components of emotional intelligence, namely Intrapersonal Emotional Intelligence, Interpersonal Emotional Intelligence, Stress Management, Adaptability and General Mood. These five components are further divided into fifteen subcomponents, namely Self-regard, Emotional self-awareness, Assertiveness, Independence and Self-actualization (Intrapersonal Emotional Intelligence); Empathy, Social responsibility, and Interpersonal relationships (Interpersonal Emotional Intelligence); Stress tolerance and Impulse control (Stress Management); Reality testing, Flexibility, and Problem solving (Adaptability); and Happiness and Optimism (General Mood) (Bar-On, 1997; 2000; 2006). The following components and related skills will be discussed in relation with suicide behaviour among adolescents.

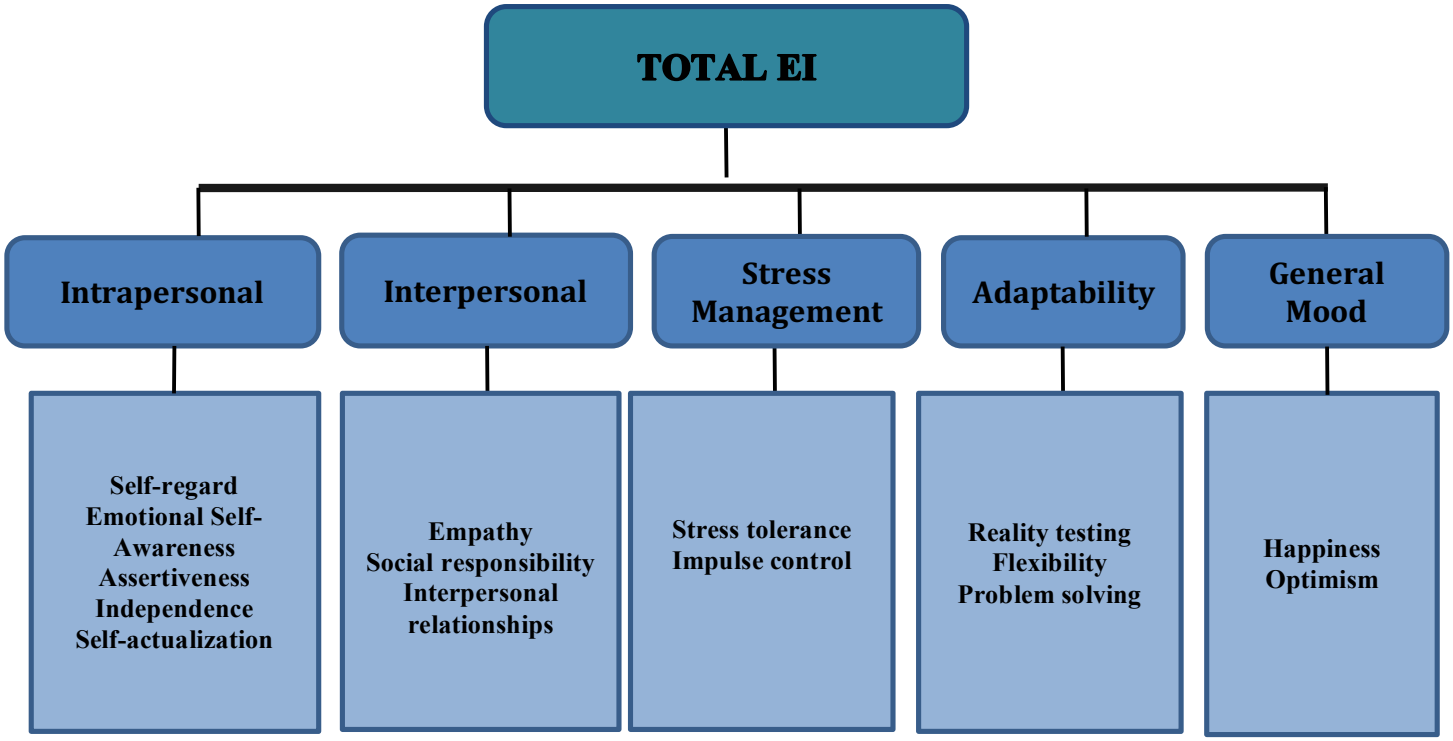

Figure 1. The Bar-On Socio-Emotional Intelligence Model (Bar-On, 1997, p. 2)

Intrapersonal ability and suicide behaviour

Bar-On and Parker (2000) define intrapersonal ability as a person's awareness of and understanding of one's feelings and ideas. High EI adolescents understand and regulate their emotions successfully and are able to express and communicate their feelings and needs in an assertive manner (Bar-On & Parker, 2000). These adolescents are aware of their own strengths and weaknesses and can plan effectively to achieve personal goals through reflection and monitoring of their thoughts and feelings (Bar-On, 2006; 2007). Studies show that adolescents with high intrapersonal EI are characterised by self-awareness and assertiveness, have a better tolerance for stress, can control impulses more effectively and are more adaptable in times of stress (Austin & Saklofske, 2010; Zavala & López, 2012). These competencies have been associated to decrease the risk for internalizing mental health disorders (for example depression and anxiety) associated with emotional dysregulation and a higher vulnerability towards suicide behaviour (Brackett, Rivers, & Salovey, 2011; Resurrección et al., 2014).

It seems that difficulties in regulating and managing one's emotions have been strongly correlated with suicide behaviour among adolescents, more specifically the regulation of frequent and intense negative emotions such as sadness, irritability, anger, aggression, hostility and guilt (Bridge, Goldstein, & Brent, 2006; Daniel & Goldston, 2012; Peltzer, Kleintjies, Van Wyk, Thompson, & Mashego, 2008; Rajappa, Gallagher, & Miranda, 2012; Schlebusch, 2012). This supports contemporary theories that suggest adolescents choose suicide behaviour as a means to escape negative emotions and perceived unbearable pain associated with unwanted distress (O'Connor & Nock, 2014; Schlebusch, 2005).

Having the ability to manage and regulate one's emotions more effectively not only leads to improved mental health but also enables the adolescent to develop good interpersonal skills and interpersonal relationships (Bar-On, 2006; 2007). The role interpersonal abilities can play as a protective factor against suicide behaviour is henceforth discussed**.**

Interpersonal ability and suicide behaviour

Interpersonal ability refers to the skills necessary for the adolescent to establish and maintain healthy positive relationships with family, friends, peers, teachers and

significant others (Bar-On & Parker, 2000). This ability signifies awareness, understanding, and interpersonal sensitivity of emotions and feelings of others (Bar-On, 2000).

A high interpersonal EI has been strongly linked with greater peer acceptance, satisfying interpersonal relationships and seeking out social support that act as protection against suicide behaviour among adolescents (Austin, Saklofske, & Egan, 2005; Birkeland, Breivik, & Wold, 2014; Rahgozar, Motahari, & Zolali, 2011). It would appear that feeling accepted, supported, and comfortable to discuss problems with family, friends, peers, teachers. and significant others in times of stress decreases the likelihood for suicide behaviour considerably (Kerr, Preuss, & King, 2006; Tancred, 2010). This suggests that adolescents who have effective interpersonal skills are protected from the risk of suicide behaviour, because they can handle interpersonal conflict effectively (Kerr et al., 2006).

In comparison, adolescents with poor interpersonal abilities have been found to be at greater risk for suicide behaviour, because of frequent interpersonal conflicts with family, friends, peers, and romantic partners (Brackett et al., 2011; Daniel & Goldston, 2012; Petrides, Frederickson, & Furnham, 2004; Speckens & Hawton, 2005). Furthermore, according to Buitron et al. (2016) a lack of social support in a time of crisis can lead to the adolescent feeling isolated, thus increasing the vulnerability towards suicide behaviour. Research has showed that interpersonal stress in the form of rejection, social isolation, conflict, teasing, shame and humiliation, exerts a greater negative emotional influence and often leads to suicide attempts among adolescents (Buitron et al., 2016; Daniel & Goldston, 2012; Du Plessis, 2012; King & Merchant, 2008). This relates to Joiner's (2005) Interpersonal-Psychological Theory of Suicide, which associates suicide behaviour among adolescents with feelings of disconnection and being burdensome, resulting from interpersonal stress and conflicts (Brackett et al., 2011; Daniel & Goldston, 2012; Peltzer, 2008). Hence, the ability to effectively manage stress is also seen as a crucial factor in avoiding suicide behaviour.

Stress management and suicide behaviour

The ability to control impulses, and tolerate and manage stress effectively, has been shown to decrease the vulnerability towards suicide behaviour immensely

(Ciarrochi et al., 2002; Gohm, Corser, & Dalsky, 2005; Simons & Gaher, 2005). Cha and Nock (2009) indicate that the ability to tolerate and manage stress moderates the association between stressful experiences and suicide behaviour for adolescents at risk. It appears that adolescents who are unlikely to be impulsive and react to a stressful event without an emotional outburst are less at risk to commit suicide (Cha & Nock, 2009; Gohm et al., 2005).

In contrast, ineffective stress management has been positively associated with suicide behaviour among adolescents (Ibrahim, Amit, & Suen, 2014). In a South African study, Peltzer et al. (2008) discovered that adolescents with higher levels of suicide behaviour struggled to manage stress, reported a decreased tolerance for stressful situations, and had difficulties in controlling negative emotions and impulses. This implies that certain adolescents, when dealing with stress, are unwilling and cannot tolerate the potential negative emotions such as helplessness and hopelessness associated with it (Peltzer et al., 2008; Gratz & Roemer, 2004). Feeling overwhelmed by stress leads to an inability to persevere in goal-directed behaviour when in a distressed state, thereby increasing the vulnerability towards suicide behaviour (Gratz & Roemer, 2004; Ibrahim et al., 2014).

A further negative consequence of ineffective stress management increasing risk towards suicide behaviour is adolescents' rigidity in changing situations and generating solutions to problems (Reinecke & Didie, 2005). This highlights the importance of adaptability in further protecting an adolescent from suicide behaviour.

Adaptability and suicide behaviour

Since adolescence is a period characterised by various biological, emotional, and social changes, it requires the adolescent to be flexible and to frequently adapt to difficult situations (Allen & Sheeber, 2008; Berger, 2011). Adolescents with a high competency in adaptability can be flexible and realistic, and can manage emotions with changing situations effectively (Bar-On & Parker, 2000). These adolescents are also good at finding positive ways of dealing and solving everyday problems (Bar-On & Parker 2000). These skills have been found to protect an adolescent against suicide behaviour since alternative solutions will always be sought out rather than giving in to a sense of hopelessness or helplessness which is often associated with increased suicide

risk (Jollant et al., 2007; Miranda, Gallagher, Bauchner, Vaysman, & Marroquín, 2012; Reinecke & Didie, 2005).

In particular, the inability to change decision-making behaviour in response to a changing environment has been found to be positively correlated with suicide behaviour among adolescents (Jollant et al., 2007). This suggests that when faced with an external stressor, an adolescent at risk for suicide behaviour is unable to generate positive solutions (Reinecke & Didie, 2005). This inability leads to the adolescent feeling increasingly overwhelmed, hopeless, and helpless to face his/her problems (Miranda et al., 2012). Several studies have highlighted a relationship between a continued sense of hopelessness and increased risk towards depression and suicide behaviour (Portzky, Audenaert, & Van Heeringen, 2009; Shilubane et al., 2013). Seeing that depression is regarded as a major risk factor for suicide behaviour among adolescents, the role of a general mood requires further attention in this regard**.**

General mood and suicide behaviour

According to Bar-On and Parker (2000), general mood refers to the ability of an adolescent to feel and express positive emotions, such as happiness and to remain hopeful and optimistic in times of stress. It has been found that adolescents who remained positive, hopeful, and optimistic despite facing stress and adversities were protected from suicide behaviour (Everall et al., 2006; Grewal & Porter, 2007). According to Grewal and Porter (2007), having hope gives a person motivation to not only set future-orientated goals that he/she feels will be achieved, but also to positively focus on the current challenges he/she faces.

In comparison, a person believing certain goals are unachievable and that a stressful situation might not change, often experiences negative emotions such as pessimism and hopelessness, thus increasing vulnerability towards suicide behaviour (Brezo, Paris, & Turecki, 2006; Grewal & Porter, 2007; Kruger, 2010; Wild et al., 2004). South African studies investigating risk behaviour in adolescents reported increased levels of sadness or a depressed mood, negativity, and a sense of hopelessness and helplessness surrounding their specific life circumstances and future plans (Kruger, 2010; Tancred, 2010; Wild et al., 2004).

In addition, a review of the literature on EI and suicide behaviour gives a clear

idea of the differences between male and female adolescents (Naghavi & Redzuan, 2011; Nolen-Hoeksema, 2012). Hence the role of gender in EI and adolescent suicide behaviour necessitated further attention.

Gender, emotional intelligence and adolescent suicide behaviour

Gender factors might influence the emotional intelligence and risk of suicide behaviour between male and female adolescents due to innate and socialised differences defined in the society as masculinity and femininity (Möller-Leimkühler, 2003; Naghavi & Redzuan, 2011, Payne, Swami, & Stanistreet, 2008). In particular, differences in the emotional reactivity and expression levels among male and female adolescents have been found to play a role, not only in the risk of suicide behaviour, but in the choice of methods as well (Mashego & Madu, 2009; Möller-Leimkühler, 2003; Netshiombo & Mashamba, 2012; Payne et al., 2008).

Female adolescents reportedly experience more suicidal ideation, attempted suicides and often choose less lethal methods such as self-poisoning and overdose on medications (Bantjes & Kagee, 2013; Mashego & Madu, 2009). Even though females process emotional information more efficiently and seek out more social support to alleviate stress in comparison to males, they tend to experience difficulties in emotion regulation increasing rumination on negative emotions (Batool & Khalid, 2009; Hampel & Petermann, 2005; Nolen-Hoeksema, 2012; Rajappa et al., 2012). Unfortunately, females, being more inclined to ruminate, are more at risk of developing mood disorders with an increased predisposition toward suicide behaviour (Aldao, Nolen-Hoeksema, & Schweizer, 2010; Mashego & Madu, 2009).

In contrast, where female adolescents are expected to be more reactive and expressive of emotions, male adolescents are discouraged to do the same (Naghavi & Redzuan, 2011). More specifically, male adolescents tend to avoid expressing emotions in a constructive way, experience difficulties in managing others' emotions and are reluctant to seek support when in distress (Möller-Leimkühler, 2003; Zimmer-Gembeck & Skinner, 2008). According to Netshiombo and Mashamba (2012), male adolescents are expected to be strong and independent, and not to seek help and support when experiencing suicide feelings or depression. This also seems to be a major contributing factor in the statistics indicating male adolescents complete suicide more

often and choose more lethal methods (Bantjes & Kagee, 2013; Mac an Ghaill & Haywood, 2012; Netshiombo & Mashamba, 2012).

Besides gender, another important variable to consider in the interactive relationship with EI and suicide behaviour is the role of racial differences.

Race[2], emotional intelligence and adolescent suicide behaviour

Research has indicated that racial differences in socio-emotional development and suicide behaviour arise from the differences in the understanding and expression of emotions, coping mechanisms and help-seeking behaviour associated with the Westernised individualistic and collectivist cultures (Goldston et al., 2008; Lester, 2008). For example, the collectivistic cultures found in South America, East Asia, and South Africa encourage socio-emotional skills that promote social harmony and adjusting to others (Halberstadt & Lozada, 2011; Moon, 2011; Schlebusch, Vawda, & Bosch, 2003). These cultures play a vital role in the development of a person's collective identity and social regulation of emotions, beliefs and values (Lester, 2008). With the Westernised individualistic cultures, self-expression of any emotion is seen as being assertive, influencing others, being independent and achieving personal goals (Halberstadt & Lozada, 2011; Moon, 2011; Schlebusch et al., 2003; Southam-Gerow & Kendall, 2002).

Regarding suicide behaviour, the more traditional collectivistic cultures have been shown to have been largely protected from suicide behaviour in the past (Goldston et al., 2008; Schlebusch, 2005). Even in South Africa, the higher social integration and regulation derived from collective communities, families, and friends have been correlated with lower levels of suicide behaviour among the Black, Coloured, and Indian communities (Netshiombo & Mashamba, 2012; Schlebusch et al., 2003; Schlebusch, 2005). Sadly, acculturation, which has resulted in a decrease in social integration and regulation, identity confusion, and a loss of traditional coping methods, has been cited as a major cause of increased suicide behaviour among these same racial

[2] The Black, White, and Coloured racial groups have been referred to in this study. The use of these terms does not imply acceptance of historically racist attitudes and assumptions. The racial groups have been used for comparison of conditions between these broad population groups within this study and furthermore for comparison of findings between different studies.

groups (Netshiombo & Mashamba, 2012; Schlebusch, 2005).

In summary, the literature reviewed above proposes that EI acts as a protective factor against adolescent suicide behaviour. This is mainly attributed to the adolescent's ability to manage any changes on a personal-, social-, or environmental level through being hopeful, optimistic, self-motivated, realistic, flexible, engaging in good problem-solving interpersonal communication, and effectively managing his/her emotions (Ciarrochi et al., 2002; Everall et al., 2006; Ruiz-Aranda et al., 2012). This highlights the need for further research in the South African context to explore the relationship between EI and suicide behaviour, with specific consideration for gender and racial differences.

Methodology

The aim of this study was to investigate the relationship between emotional intelligence and suicide behaviour among South African adolescents. Specifically, the goal was to determine whether gender and race moderated the relationship between emotional intelligence and suicide behaviour. In this study, gender and race were regarded as moderator variables.

Research design

In this study, a quantitative non-experimental correlational methodology was used to determine differences between the female and male, Black, Coloured- and White groups with regard to their emotional intelligence and suicide behaviour.

Participants and data gathering

The total sample of participants comprised of 662 grade 10-12 learners (ages 16-18) from 10 secondary schools in the Eden district, Western Cape Province. The average age of the participants was 17.51 with a standard deviation of 1.16. The participants were selected through a stratified random sampling technique from the total of the 29 secondary schools in the Eden district. The population of the Eden district constitutes 10% of the total population of the Western Cape Province (5.8 million) and comprises of seven local municipalities that include the towns of Ladismith, Riversdale, Mossel Bay, George, Oudtshoorn, Knysna, and Plettenberg Bay. In Table 1 the frequency distribution of the single biographical variables is displayed. The sample

included 387 females (58.5%) and 275 males (41.5%) with the racial group distribution as follows: 342 Black (51.7%), 253 Coloured (38.2%), and 67 White (10.1%).

Table 1

Frequency Distribution of Single Biographical Variables

Biographical variable		N	%
	Gender		
	Female	387	58.5
	Male	275	41.5
Total:		662	100.0
	Grade		
	10	23	3.5
	11	395	59.7
	12	244	36.9
Total:		662	100.0
	Race		
	Black	342	51.7
	Coloured	253	38.2
	White	67	10.1
Total:		662	100.0
	Home Language		
	Afrikaans	317	47.9
	Xhosa	318	48.0
	English	19	2.9
	Zulu	6	0.9
	SeSotho	0	0.0
	Setswana	0	0.0
	Other	2	0.3
Total:		662	100.0

Within the demographic context of the Eden district, statistics show that it has a total population of about 575 000 of which 47 500 are adolescents between the ages of 15-19 with a larger female to male distribution (Statistics South Africa, 2012). The three main racial groups in the Eden district area are Coloured (54%), Black (25%), and White (19%). The main languages spoken in this area are Afrikaans (71%), Xhosa (18%), followed by English (7%).

In terms of ethical considerations, the Research Ethics Committee of the Faculty of Humanities, University of the Free State approved the study. Further permission was granted by the Western Cape Department of Education to conduct the study and to contact the school principals. With the co-operation of the various school principals a testing time was arranged for each specific school. An informational pamphlet on suicide prevention and a parental consent form were made available in the preferred home language of the parent and learner. Parents were requested to provide written informed consent before the testing day. Informed consent was also

obtained from the learners on the specific day of testing. The researcher and assistant provided more information of the study to the learners and emphasized the principles of anonymity and confidentiality. Participation was voluntarily and the learners were given opportunity to withdraw at any given time.

Because of copyright regulations the questionnaires could only be administered in English. The researcher employed an assistant with a psychology background and proficiency in the three main languages to assist with administering the questionnaires and translation. The assistant received prior training in the management of the questionnaires and other administrative duties to ensure successful collection of data. The questionnaires were successfully completed within a two-hour period. A debriefing opportunity was available in case a learner experienced emotional distress after the completion of the questionnaire. Every school principal was also encouraged to contact the researcher should any learner or parent require further support. In addition, a telephonic follow-up was done two (2) weeks after the specific school visit and testing.

Description of variables

Because the role of gender and race in the relationship between emotional intelligence and suicide behaviour among the adolescents is explored, it is important to describe the different types of variables in this study. Suicide behaviour is the dependent variable in this study and emotional intelligence (EI) is the independent variable. With regard to suicide behaviour, a single total score was obtained for every participant. Five different scores (intrapersonal, interpersonal, stress management, adaptability, and general mood), as well as a total EI score were obtained for the independent variable (EI). Since the role of gender and race in this correlation was investigated, they were regarded as the moderator variables in this model. These are the same moderator variables as discussed in Article 1.

The following measuring instruments were used to measure the different variables:

Measuring instruments

A *biographical questionnaire* compiled by the researcher was used to gather information regarding grade, age, gender, and racial group.

The dependent variable was assessed using *the senior high school version of the Suicidal Ideation Questionnaire* (SIQ: Reynolds, 1988). This questionnaire measures the frequency and intensity of suicidal thoughts reported by the participants and consists of 30 items that are answered on a seven point Likert scale. Examples of questions ranged from ("I thought about killing myself" to "I thought about hurting myself but not killing myself"). The score of each item is added to yield a total raw score. The total suicide ideation score ranges from 0-180. According to Reynolds (1988), a total score of >31 can be considered as indicative of a high suicide risk. Pertaining to reliability, Reynolds (1988) reported a Cronbach alpha coefficient of 0.97 in an American study with adolescents. The reliability of the scale received a good report within South African studies by George (2009) and Du Plessis (2012), which reported Cronbach alpha coefficients of 0.95 and 0.97 respectively.

The independent variable was assessed through *the youth version of the Bar-On Emotional Quotient Inventory* (EQI: Bar-On & Parker, 2000). This questionnaire measures the emotional and social functioning among children and adolescents and is suitable for participants aged 7-18 years of age. There are short and longer versions. The long version was used in this study. This questionnaire consists of 60 items, takes about 30 minutes to complete and measures the following seven subscales: Intrapersonal (Self-Regard, Emotional Self-Awareness, Assertiveness, Independence, Self-Actualization), Interpersonal (Empathy, Social Responsibility, Interpersonal Relationships), Adaptability (Reality Testing, Flexibility, Problem Solving), Stress Management (Stress Tolerance, Impulse Control), General Mood (Optimism, Happiness), Positive Impression (Validity) and Inconsistency Index (Validity). The items are fixed by a four-point scale with a written response structure ranging from 1 = Very seldom or Not true of me to 4 = Very often true of me or True of me. Table 2 illustrates one example of each subscale that was measured:

Table 2

Example of Items from the Six Emotional Intelligence Quotient Subscales

Emotional Intelligence subscales	Example of subscale item
1. **Intrapersonal**	*"It is easy for people to tell how I feel"*
2. **Interpersonal**	*"I care what happens to other people"*
3. **Adaptability**	*"It is easy for me to understand new things"*
4. **Stress Management**	*"I can stay calm when I am upset"*
5. **General Mood**	*"I am happy"*
6. **Positive Impression**	*"I like everyone I meet"*

The total score and scale scores are presented as standard scores and ranges from0 to 240. A standard score in the range of 90 to 110 indicates effective emotional and social functioning. A score greater than 110 suggests the presence of enhanced emotional and social skills, while a score of less than 90 suggests that enriching skills in that area should be emphasised. The subscales Positive Impression and Inconsistency form part of the validity index which serves as a built-in correction factor that automatically modifies the scale scores based on scores obtained from these two subscales. According to Bar-On (2006) this is a vital aspect for self-report measures to increase accuracy of results by reducing response bias. This scale had a Cronbach alpha coefficient ranging from 0.65 to 0.90 in a study with 9,172 children and adolescents in America (Bar-On & Parker, 2000). This measurement was standardised for South African use by Van Rooyen and Partners in 2000, and in a recent South African study of adolescents, Cronbach alpha coefficients ranging from 0.51 to 0.84 were reported (Du Plessis & Van Zyl, 2014).

The reliability of the measuring instruments and scales used in this study were investigated by computing Cronbach's alpha coefficients (SPSS Incorporated, 2011). The alpha coefficients for all the scales, including the total and the three racial groups, are reported in Table 3.

Table 3

Reliability (Cronbach's Alpha Coefficients) for the Measuring Instruments and Scales

Scales of measuring instruments	Alpha coefficient			
	Total	Black	Coloured	White
Suicide Behaviour	0.963	0.960	0.967	0.977
Emotional Intelligence				
Intrapersonal	**0.605**	**0.512**	**0.601**	0.859
Interpersonal	0.830	0.825	0.809	0.852
Stress Management	0.792	0.792	0.749	0.894
Adaptability	0.804	0.785	0.799	0.864
General Mood	0.911	0.923	0.896	0.892
Total	0.922	0.931	0.907	0.900

From Table 3 it is evident that the computed coefficients ranged from 0.977 (Suicide behaviour – White group) to 0.512 (Intrapersonal – Black group). According to Lance, Butts and Michels (2006) coefficients of 0.7 and above are acceptable in the social sciences. It is clear that for the EI scale, the intrapersonal scale does not adhere to this requirement for the total group, as well as the Black and Coloured adolescent groups. Consequently, this scale was not included in further analysis. Several studies in South Africa, exploring EI during adolescence, have found insufficient reliability coefficients for specifically the intrapersonal scale (Coetzee, 2009; Du Plessis & Van Zyl, 2014; Koen, 2008).

Research question

Based on the reviewed literature, the following research question was formulated:

> Is the relationship between EI and suicide behaviour moderated by gender and race among the adolescents?

To investigate this question, a particular statistical analysis procedure was followed and is discussed in the section below.

Statistical analysis

In the moderated hierarchical regression analyses described by Howell (2013), the possible moderating role of gender and race in the relationship between EI and suicide behaviour (criterion) were investigated. A moderator variable influences the direction and/or strength of the relationship between the predictor and criterion variables (Baron & Kenny, 1986).

In order to determine whether the intervening variable(s) act as moderator(s) in the relationship between the independent and dependent variables, different steps must be performed in the hierarchical regression procedure. First, the analysis of a single variable consists of adding one of the EI variables (for example interpersonal) to the regression equation to determine its unique contribution. During step two, both the independent and intervening variable (for example interpersonal and gender) are added to the equation. In this way the significant proportional contribution of each of the predictor variables with regard to the forecast of the criterion variable (suicide behaviour) is determined. Step three comprises investigating the ***product*** between the independent variable (for example interpersonal x gender) in the prediction of suicide behaviour. If the computed Beta-coefficient of the product term (step 3) is significant, it can be assumed that a significant interaction exists, thereby implying a ***moderating*** effect (Howell, 2013). If gender and race are then identified as moderators, it can be concluded that the strength or direction in the relationship (for example interpersonal EI and suicide behaviour) is being influenced by these moderator/s (Field, 2013). However, as noted by Warner (2013), in studies where a moderator effect is investigated a significant correlation between the independent and dependent variables is not always a requirement.

Concerning the moderator variables (gender and race), it is clear that they are categorical in nature. Gender only has two (2) categories and can be easily used in regression analysis by re-assigning the codes 0 (males) and 1 (females) to the different categories, whilst regarding race, there are three (3) categories. In order to use this variable in the regression analysis it is necessary to convert it to several variables, each consisting of two categories. Consequently, it is required to do dummy coding. During the creation of dummy variables (where more than two categories are present), two groups are created with a value of 0 or 1. The number of dummy variables created is always one (1) minus the number of categories (Field, 2013). In this instance, it is two dummy variables. The first step is to choose a baseline group. In this study it was decided to use the White adolescents as baseline and to compare the Black and Coloured adolescents with them. The baseline group (White adolescents) is assigned a value of 0 for all the dummy variables. For the first dummy variable (Black vs White) the Black adolescents were assigned a value of 1 and the others were given a code 0.

For the second dummy variable (Coloured vs White) the Coloured group of adolescents were given a code of 1 while a code 0 was assigned to the others.

All the analyses were performed using the SPSS-program (SPSS Incorporated, 2011). Both the 1% and the 5% levels of statistical significance were used in this study.

Results and discussion

Descriptive statistics

Descriptive statistics for all the involved variables for the total group are reported in Table 4 with an indication of minimum and maximum values, central tendency (means and standard deviations), and dispersion (skewness and kurtosis). For the interpretation of the skewness and kurtosis indexes the guidelines provided by Brown (2012) were applied. According to Brown (2012), the following interpretation with regard to the skewness index can be made, namely

- If smaller than -1.0 or greater than +1.0, the distribution will be very skewed.
- If between -1.0 and -½ or between +½ and +1.0, the distribution will be moderately skewed.
- If between -½ and +½, the distribution will be moderately symmetrical.
- If equal to 0, the distribution is normal.

In order to interpret the kurtosis index, it is important to determine the excess kurtosis (kurtosis-3). In other words, if a distribution is normal the kurtosis value will be = 3 so that (3-3 = 0) are indicative of an excessive kurtosis with a value of 0. If the excessive kurtosis has a negative value, this means the distribution will be relatively flat (platykurtic). A positive kurtosis value indicates a distribution that is relatively peaked (leptokurtic). In the following tables the excessive kurtosis values are shown, thereby indicating that if a value is smaller than -2.0 or more than +2.0, the distribution will be either very flat or very peaked. In Table 4 the descriptive statistics are presented for the total participant group in relation to the independent-and dependent variables.

Table 4

Minimum, Maximum Values, Means, Standard Deviations, Skewness and Kurtosis of Dependent and Independent Variables

	Min	Max	Mean	SD	Skewness	Kurtosis
Suicide Behaviour	0	179	34.77	36.90	1.538	1.636
Emotional Intelligence:						
Interpersonal	12	48	35.68	7.16	-0.838	0.390
Stress management	12	48	32.80	7.15	-0.192	-0.484
Adaptability	12	40	27.13	5.56	-0.247	-0.184
General mood	12	56	42.78	10.18	-0.997	0.138
Total	78	231	167.24	26.01	-0.651	0.278

From Table 4 it is evident, that acceptable skewness and kurtosis values were obtained, with the exception of suicide behaviour, in which instance the data does deviate from normal. Suicide behaviour is indicative of pathological behaviour, so it is expected that the majority of the participants would report lower values. Therefore, the two values show relative skewed and peaked distributions.

The mean and standard deviation of suicide behaviour are respectively 34.77 and 36.90 in this study. In comparison with a similar study conducted in the Northern Cape Province, George (2005) reported a mean of 39.51 and a standard deviation of 36.14 for suicide behaviour. The scores in this study are significantly lower than the scores of George (2005), which indicates that the participants in this study reported a generally lower degree of suicide behaviour. Furthermore, results from this study suggest that a total of 34.6% (N = 229) adolescents of the total number (N = 662) fell into the high risk group of suicide behaviour, compared to other studies conducted amongst adolescents in different regions of South Africa, where the incidence of suicide behaviour ranges from 19% to as high as 39% (George, 2009; Meehan, Peirson, & Fridjhon, 2007; Tancred, 2010).

For the total EI score, the minimum score obtained was 78 and the highest was 231. Regarding the total EI score a mean score of 167.24 and a standard deviation of 26.01 were calculated. In studies by Bar-On and Parker (2000) and Koen (2008), mean scores of 100 and 78.63 respectively were reported. This suggests that in the current study the adolescents reported a higher total emotional intelligence than those in the studies of Bar-On and Parker (2000) and Koen (2008).

Because regression analysis were used in the sections below, the correlations between all the independent and dependent variables were calculated with Pearson's product moment correlation coefficients (displayed in Table 5).

Table 5

Correlation Coefficients between the EI Scales and Suicide Behaviour for the Total Group, the Two Genders and Three Racial Groups

Independent variables	Suicide behaviour					
	Total group (n=662)	Gender		Racial Group		
		Females (n=387)	Males (N=275)	Black (n=342)	Coloured (n=253)	White (n=67)
Interpersonal	0.104**	0.121*	0.023	0.107*	0.164**	-0.088
Stress management	-0.210*	-0.209**	-0.195**	-0.156**	-0.252**	-0.269*
Adaptability	-0.027	0.023	-0.131*	0.042	-0.039	-0.219
General Mood	-0.065	-0.027	-0.107	-0.028	-0.080	-0.438**
EI-total	-0.095*	-0.064	-0.149*	-0.039	-0.107	-0.433**

** $p \leq 0.01$
* $p \leq 0.05$

According to Table 5, there is only one EI-scale, namely *Stress management* that shows a significant negative correlation with suicide behaviour on the 1% and 5% levels of significance for all the groups. These negative correlation coefficients indicate that the higher the adolescents' scores are in terms of stress management, the lower the scores they reported on suicide behaviour. These results are supported by a study by Cha and Nock (2009) that found a strong relationship between the ability to tolerate and manage stress and lower level of suicide behaviour for adolescents at risk. The importance of stress management is further highlighted in a South African study that found adolescents with higher levels of suicide behaviour struggled to manage stress with associated decreased tolerance for stress and difficulties in controlling impulses (Peltzer et al., 2008).

Keeping in mind that the total sample of White adolescents (N = 67) were low in comparison with the other racial groups (Black and Coloured), there was a significant correlation on the 1% level of significance (-0.438) between *General mood* and suicide behaviour among the White sample. This suggests that White adolescents who reported higher levels of general mood reported lower levels of suicide behaviour. General mood refers to an adolescent's ability to feel and express positive emotions, such as happiness, and to remain optimistic in times of stress (Bar-On & Parker, 2000). High levels of suicide behaviour have been consistently shown to have a strong correlation with negative emotions and a sense of hopelessness and helplessness that a stressful

situation might change (Brezo et al., 2006; Everall et al., 2006; Kruger, 2010; Wild et al., 2004). In light of this, these findings suggest that White adolescents are happier and optimistic even when experiencing stress, which can be regarded as an important protective factor against suicide behaviour. Socio-economic factors could also play a role here, as these adolescents are often from more affluent backgrounds. It is known that a lower socio-economic status or poverty, with its associated stressors, might challenge adolescents' ability to deal with the stress and associated negative emotions, hence leading to a greater vulnerability towards suicide behaviour (Zimmer-Gembeck & Skinner, 2008).

With the exception of this coefficient (general mood), the other statistical significant coefficients display a small-to medium effect size.

In the following section the results in terms of the research question are discussed.

Research question

A moderated hierarchical regression analysis were performed to investigate whether a) gender and b) race moderate the relationship between EI (4 subscales and total scale) and suicide behaviour.

Gender as a moderator

Table 6 shows the results of the moderated hierarchical regression. In this analysis it was investigated whether gender moderated the relationship between EI (interpersonal, stress management, adaptability, general mood and total EI) and suicide behaviour.

Table 6

Moderating Effect of Gender in the Relationship between the EI Scales and Suicide Behaviour among the Adolescents

Model				Change Statistics				
	R	R^2	Adjusted R^2	R^2 Change	*F* Change	df1	df2	Sig. *F* Change
1	0.104	0.011	0.009	0.011	7.203	1	660	0.007
2	0.217	0.047	0.044	0.036	25.102	1	659	0.000
3	0.224	0.050	0.046	0.003	2.098	1	658	0.148
4	0.210	0.044	0.043	0.044	30.387	1	660	0.000
5	0.278	0.077	0.075	0.033	23.892	1	659	0.000
6	0.283	0.080	0.076	0.003	1.793	1	658	0.181
7	0.027	0.001	0.001	0.001	0.483	1	660	0.487
8	0.200	0.040	0.037	0.039	27.037	1	659	0.000
9	0.209	0.044	0.039	0.003	2.380	1	658	0.123
10	0.065	0.004	0.003	0.004	2.815	1	660	0.094
11	0.205	0.042	0.039	0.038	25.873	1	659	0.000
12	0.206	0.042	0.038	0.001	0.380	1	658	0.538
13	0.095	0.009	0.008	0.009	6.057	1	660	0.014
14	0.217	0.047	0.044	0.038	26.328	1	659	0.000
15	0.218	0.047	0.043	0.000	0.161	1	658	0.688

** $p \leq 0.01$ Note: Interp = interpersonal; Smang = stress management; Adapt = adaptability; Gmood = general mood
* $p \leq 0.05$

Model 1: Interp
Model 2: Interp; gender
Model 3: Interp; gender; interp x gender
Model 4: S mang
Model 5: S mang; gender
Model 6: S mang; gender; s mang x gender
Model 7: Adapt
Model 8: Adapt; gender
Model 9: Adapt; gender; adapt x gender
Model 10: General mood
Model 11: Gmood; gender
Model 12: G mood; gender; g mood x gender
Model 13: EI total
Model 14: EI total; gender
Model 15: EI total; gender; EI total x gender

The information from Table 6 shows the following changes in terms of the R^2 results, when the moderating effect of gender in the relationship between the four EI scales (including the total EI scale) and suicide behaviour are investigated:

Interpersonal: $\Delta R^2 = 0.003$; $F_{(1;658)} = 2.098$; $p = 0.148$.

Stress management: $\Delta R^2 = 0.003$; $F_{(1;658)} = 1.793$; $p = 0.181$.

Adaptability: $\Delta R^2 = 0.003$; $F_{(1;658)} = 2.380$; $p = 0.123$.

General Mood: $\Delta R^2 = 0.001$; $F_{(1;658)} = 0.380$; $p = 0.538$.

EI Total: $\Delta R^2 = 0.000$; $F_{(1;658)} = 0.161$; $p = 0.688$.

The results above indicate that gender does not succeed to moderate any of the relationships between the EI scales and suicide behaviour. Hence, the results are not discussed further.

Race (Black vs White) as a moderator

A moderated hierarchical regression analysis was performed to investigate whether race (Black vs White) moderated the relationship between the EI scales and suicide behaviour. The results are shown in Table 7.

Table 7

Moderating Effect of Race (Black vs White) in the Relationship between the EI Scales and Suicide Behaviour among the Adolescents

Model				Change Statistics				
	R	R^2	Adjusted R^2	R^2 Change	*F* Change	df1	df2	Sig. *F* Change
1	0.104	0.011	0.009	0.001	7.203	1	660	0.007
2	0.110	0.012	0.009	0.001	0.832	1	659	0.362
3	0.110	0.012	0.008	0.000	0.014	1	658	0.906
4	0.210	0.044	0.043	0.044	30.387	1	660	0.000
5	0.213	0.045	0.042	0.001	0.800	1	659	0.371
6	0.221	0.049	0.045	0.004	2.643	1	658	0.104
7	0.027	0.001	0.001	0.001	0.483	1	660	0.487
8	0.060	0.004	0.001	0.003	1.897	1	659	0.169
9	0.094	0.009	0.004	0.005	3.492	1	658	0.062
10	0.065	0.004	0.003	0.004	2.815	1	660	0.094
11	0.087	0.008	0.005	0.003	2.261	1	659	0.133
12	0.105	0.011	0.007	0.003	2.313	1	658	0.129
13	0.095	0.009	0.008	0.009	6.057	1	660	0.014
14	0.111	0.012	0.009	0.003	2.086	1	659	0.149
15	0.136	0.018	0.014	0.006	**4.160***	1	658	0.042

** *p* ≤ *0.01* Note: Interp = interpersonal; Smang = stress management; Adapt = adaptability; Gmood = general mood
* *p* ≤ *0.05*

Model 1: Interp
Model 2: Interp; race
Model 3: Interp; race; interp x race
Model 4: S mang
Model 5: S mang; race
Model 6: S mang; race; s mang x race
Model 7: Adapt
Model 8: Adapt; race
Model 9: Adapt; race; adapt x race
Model 10: G mood
Model 11: G mood; race
Model 12: G mood; race; g mood x race
Model 13: EI total
Model 14: EI total; race
Model 15: EI total; race; EI total x race

Information from Table 7 shows the following changes in terms of the R^2 results, when the moderating effect of race (Black vs White) in the relationship between the EI scales (including the total EI scale) and suicide behaviour among the adolescents are investigated:

Interpersonal: $\Delta R^2 = 0.000$; $F_{(1;658)} = 0.014$; $p = 0.906$.

Stress management: $\Delta R^2 = 0.004$; $F_{(1;658)} = 2.643$; $p = 0.104$.

Adaptability: $\Delta R^2 = 0.005$; $F_{(1;658)} = 3.492$; $p = 0.062$.

General Mood: $\Delta R^2 = 0.003$; $F_{(1;658)} = 2.313$; $p = 0.129$.

EI Total: $\Delta R^2 = 0.006$; $F_{(1;658)} = 4.160$; $p = 0.042$.

The above results indicate that race (Black vs White) moderates one of the relationships between the EI scales and suicide behaviour among the adolescents. This scale is the *EI-total*, that shows a significant correlation with suicide behaviour on the 5% level of significance, $R^2 = 0.009$, $F_{(1;660)} = 6.057$; $p = 0.014$. The EI total explains 1% of the variance in suicide behaviour among the adolescents. Due to the significant interaction that was obtained from model 15 ($F_{(1;658)} = 4.160$; $p = 0.042$), it was determined that race (Black vs White) does indeed moderate this relationship and that this interaction accounts for an additional 0.6% of the variance in suicide behaviour. EI total, together with its interaction with race, accounts for about 1.4% of the variance in suicide behaviour. This highlights the emphasis of several studies on the importance of a high level of emotional intelligence being associated with decreased levels of suicide behaviour (Cha & Nock, 2009; Ciarrochi et al., 2002; Downey et al., 2010; Mikolajczak et al., 2009). This result was further explored for model 15 by calculating the standard weighted regression, *t*-values, *p*-values and semi-partial correlations of the independent variables. The following values were obtained ($\beta = 0.534$; $r = 0.079$; $t = 2.040$; $p = 0.042$). It is thus evident that race (Black vs White) plays a significant role in the relationship between the EI total and suicide behaviour among the adolescents. To better understand the moderating effect of race in the relationship between EI-total and suicide behaviour, separate regression lines for the Black and White adolescents were calculated. This is illustrated in Figure 2.

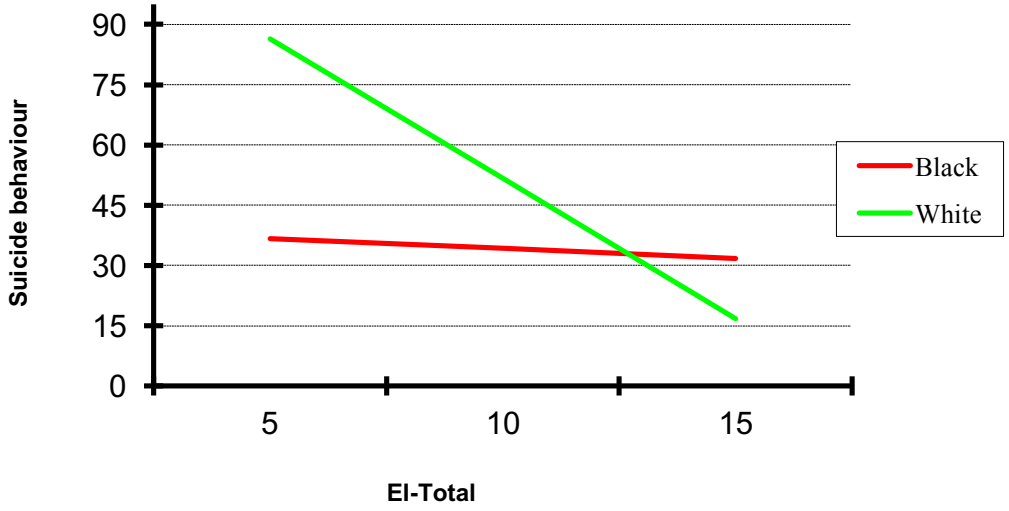

Figure 2. Regression lines of the Black and White adolescents with Emotional Intelligence (total) as predictor variable of suicide behaviour among the adolescents

It is evident from Figure 2 that for the White adolescent group there is a rapid decline (scope = -0.697) with a negative correlation (r = -0.433; p = 0.000) between the EI total and suicide behaviour. Among the Black group there is a very small decline as reflected in the scope of -0.050. This means that for the White adolescents, in comparison with the Black group, there is a bigger decrease in suicide behaviour when there is an increase in emotional intelligence (total score). Furthermore, the relationship between the EI total is relatively insignificant for the Black adolescents (r 0.039) while it is very significant for the White group. In conclusion, EI total does not play such an important role in the Black adolescents' experience of suicide behaviour as it does for the White group. According to Maree (2008), the cultural context of Black adolescents and their understanding of the concepts relating to emotional intelligence play a significant role in their interpretation of the Bar-On EQI, thereby giving different results.

A moderated hierarchical regression analysis was performed to investigate if race (Coloured vs White) moderated the relationship between the EI scales and suicide behaviour. The results are shown in Table 8.

Table 8

Moderating Effect of Race (Coloured vs White) in the Relationship between the EI Scales and Suicide Behaviour among the Adolescents

Model				Change Statistics				
	R	R^2	Adjusted R^2	R^2 Change	*F* Change	df1	df2	Sig. *F* Change
1	0.104	0.011	0.009	0.001	7.203	1	660	0.007
2	0.141	0.020	0.017	0.009	6.169	1	659	0.013
3	0.153	0.023	0.019	0.003	2.334	1	658	0.127
4	0.210	0.044	0.043	0.044	30.387	1	660	0.000
5	0.223	0.050	0.047	0.006	4.076	1	659	0.044
6	0.231	0.053	0.049	0.003	2.429	1	658	0.120
7	0.027	0.001	0.001	0.001	0.483	1	660	0.487
8	0.101	0.010	0.007	0.010	6.371	1	659	0.012
9	0.103	0.011	0.006	0.000	0.203	1	658	0.653
10	0.065	0.004	0.003	0.004	2.815	1	660	0.094
11	0.123	0.015	0.012	0.011	7.329	1	659	0.007
12	0.124	0.015	0.011	0.000	0.109	1	658	0.742
13	0.095	0.009	0.008	0.009	6.057	1	660	0.014
14	0.136	0.018	0.015	0.009	6.283	1	659	0.012
15	0.137	0.019	0.014	0.001	0.285	1	658	0.594

** $p \leq 0.01$ Note: Interp = interpersonal; Smang = stress management; Adapt = adaptability; Gmood = general mood
* $p \leq 0.05$

Model 1: Interp
Model 2: Interp; race
Model 3: Interp; race; interp x race
Model 4: S mang
Model 5: S mang; race
Model 6: S mang; race; s mang x race
Model 7: Adapt
Model 8: Adapt; race
Model 9: Adapt; race; adapt x race
Model 10: G mood
Model 11: G mood; race
Model 12: G mood; race; g mood x race
Model 13: EI total
Model 14: EI total; race
Model 15: EI total; race; EI total x race

Information from Table 8 shows the following changes in terms of the R^2 results, when the moderating effect of race (Coloured vs White) in the relationship between the EI scales (including the total EI scale) and suicide behaviour among the adolescents are investigated:

Interpersonal: $\Delta R^2 = 0.003$; $F_{(1;658)} = 2.334$; $p = 0.127$.

Stress management: $\Delta R^2 = 0.003$; $F_{(1;658)} = 2.429$; $p = 0.120$.

Adaptability: $\Delta R^2 = 0.000$; $F_{(1;658)} = 0.203$; $p = 0.653$.

General Mood: $\Delta R^2 = 0.000$; $F_{(1;658)} = 0.109$; $p = 0.742$.

EI Total: $\Delta R^2 = 0.001$; $F_{(1;658)} = 0.285$; $p = 0.594$.

The above results indicate that race (Coloured vs White) does not moderate the relationship between any of the EI scales and suicide behaviour. Hence, there is no further discussion of the results.

Conclusion

The primary objective of this study was to compare a South African sample of female and male, Black, Coloured and White adolescents to investigate whether gender and race had a moderating effect in the relationship between emotional intelligence and suicide behaviour. Results showed that, except for the intrapersonal scale on the emotional intelligence scale (Bar-On EQI), the measuring scales used in this study provided acceptable reliability (Lance et al., 2006).

The results of the study suggest that a total of 34.6% adolescents fell into the high-risk group of suicide behaviour as measured by the reported level of suicidal ideation. Compared to other studies conducted amongst adolescents in different regions of South Africa, the incidence of suicide behaviour range from 19% to as high as 39% (George, 2009; Meehan et al., 2007; Tancred, 2010). Despite disparities in socio-economic factors that could have attributed to the variances across the different provinces, the current study adds to the existing knowledge base that suicide behaviour among South African adolescents is a significant public health concern (Reddy et al., 2013; Schlebusch, 2005; 2012; Shilubane et al., 2013). With regard to emotional intelligence, all the participants in this study reported a higher level of emotional intelligence (Total EI) (mean = 167.24 and a standard deviation of 26.01) compared to a North American sample (mean = 100; standard deviation = 15) (Bar-On & Parker, 2000). In a South African study, a sample of (N = 482) adolescents between the ages of 14 and 22 years of age achieved a total emotional intelligence score of 78.63, which signified a lower level of emotional intelligence (Koen, 2008).

The main contribution of this study is that stress management, as an emotional intelligence variable, was found to have a significant correlation with decreased levels of suicide behaviour among the total sample of adolescents. Stress management refers to the ability to tolerate and manage stress as well as control impulses associated with the distress (Bar-On & Parker, 2000). It is an important ability for adolescents as it has been positively related to better psychological adjustment and well-being (Berger, 2011; Zimmer-Gembeck & Skinner, 2008). During adolescence, stress is ever-present, and being able to effectively manage it can decrease the individual's vulnerability towards suicide behaviour (Ciarrochi et al., 2002; Gohm et al., 2007).

Another impact of this study is that there are racial differences in the reported emotional intelligence scales and suicide behaviour. Even with a small sample (N = 67), the White adolescents reported strong relationships between general mood (being happy and optimistic) and total EI respectively with decreased levels of suicide behaviour. Positive emotions, such as happiness and optimism, have been positively linked with psychological well-being among adolescents (Davis & Humphrey, 2012; Poulou, 2014). Furthermore, Bar-On and Parker (2000) reported a significant correlation between the general mood scale and total EI scale, with general mood being a vital motivating and facilitating factor relevant to the overall emotional intelligence of adolescents. In the current study the findings then suggest that White adolescents reported lower levels of suicide behaviour because of competencies of effectively dealing with changes in their personal or social life by being hopeful, optimistic, self-motivated, realistic and flexible, engaging in good problem-solving, and interpersonal communication. This is supported in research that emphasizes the role of EI in not only reducing negative emotional states but also decreasing perceived stress, depressive thoughts, and suicide behaviour (Ciarrochi et al., 2002; Mikolajczak et al., 2009). The White adolescents experiencing a more general positive mood of happiness and optimism in comparison with the Black group might also be attributed to the influence of socio-economic factors. Özler (2007) indicates that in post-apartheid South Africa huge disparities in socio-economic factors between the different racial groups still exist, with the Black adolescents still facing various stressors associated with poverty. These stressors could contribute to lower levels of happiness and optimism among the Black adolescents when compared with the White adolescents.

The finding that total EI did not play a significant role in the reported levels of suicide behaviour among the Black adolescents (Black vs White adolescents) might suggest the influence of other factors. In a South African study, differences in results among the races were attributed to the interpretation and importance placed on EI (Maree, 2008).

In summary, the overall findings point towards the protective nature of emotional intelligence that decreases the risk among adolescents to engage in suicide behaviour. Consequently, it can provide value in the development of suicide

prevention-and intervention strategies.

Limitations and recommendations

The following limitations need to be considered in the interpretation of the current study:

1. The current study was conducted in one region of South Africa. Results from this study can only be generalised to adolescents with a similar background. Specifically, the sample of White adolescents was underrepresented, therefore it is difficult to attribute results from this group as representative of the majority of White adolescents in South Africa.
2. The correlational design of this study does not allow any causal inferences to be made among the factors studied. Longitudinal studies would be beneficial in order to further explore the relationship between emotional intelligence and suicide behaviour for the different gender and racial groups among the South African adolescents. The role of coping in the relationship between emotional intelligence and suicide behaviour could also provide very interesting results.
3. Copyright regulations prohibited the researcher to translate the questionnaires in the preferred language of the participants. This could have led to participants not understanding the questions, thereby influencing their responses. The researcher tried to limit this occurrence by employing a psychology graduate fluent in Xhosa, English and Afrikaans. According to Maree (2008), there is a great need for existing measures to have increased reliability, validity, and culture-relevance in South Africa.
4. Specifically, with regard to the Bar-On EQI, which is based on self-report, the limitation was there that the participants did not understand the concepts of EI and also wanted to leave a desirable impression thus influencing the reliability of the results (Grubb & McDaniel, 2007). Prior to testing the participants were encouraged to answer honestly and the anonymity factor aimed at promoting this as well.
5. The Intrapersonal scale of the Bar-On EQI did not provide an acceptable internal consistency, and the same was also found in other studies (Coetzee, 2009; Du Plessis & Van Zyl, 2014). This leaves the question whether certain adjustments must be made to the scale for reliability within the South African

context.

6. This study only focused on the moderating role of gender and race in the relationship between emotional intelligence and suicide behaviour. A further gender by race analysis could also yield interesting results.
7. Qualitative studies could also provide a more in-depth understanding of the dynamics playing a role in the adolescents' understanding and experience of emotional intelligence and how it influences suicide risk behaviour.
8. This study determined the incidence of suicide behaviour by measuring the level of suicidal ideation among a general sample of adolescents and did not distinguish between those who had been directly involved in suicide attempts. This may have restricted the study in relation to valuable information with regard to the dynamics involved in suicide behaviour. Therefore, future research would benefit by using a sample of adolescents who have attempted suicide to gain a better understanding of the variables incorporated in this study.

The recommendation made on the results from this study is that research on the relationship between emotional intelligence and adolescent suicide behaviour should be further explored within the South African context. The results of this study highlight the importance of gender and race sensitivity in understanding emotional intelligence and suicide behaviour among adolescents in South Africa. With the increase of adolescent suicide behaviour in South Africa, health professionals need to explore every opportunity to strengthen the adolescents' emotional health in order to protect them against this enormous public health challenge. Research suggests that the development of EI among adolescents is an attainable goal as it can be taught in schools (Bar-On, 2006; 2007; Qualter, Gardner, & Whiteley, 2007). This current study suggests that workshops in developing emotional intelligence among adolescents and in particular, stress management would be of value in the prevention and intervention of suicide behaviour.

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ARTICLE 3
THE MODERATING ROLE OF EMOTIONAL INTELLIGENCE IN THE RELATIONSHIP BETWEEN PSYCHOSOCIAL FACTORS AND SUICIDE BEHAVIOUR IN SOUTH AFRICAN ADOLESCENTS

Abstract

Adolescent suicide behaviour remains a significant public health care challenge around the world and particularly in South Africa. The high incidence of suicide behaviour among South African adolescents is indicative of a struggle to emotionally cope with life's problems. Literature suggests that the influence of an adolescent's social network in general, and the role of Emotional Intelligence (EI) in particular, plays a significant role in an adolescent's risk towards suicide behaviour. This study aimed to examine the moderating role of EI in the relationship between psychosocial factors (interpersonal stressors and resources) and suicide behaviour among a group of Black, Coloured, White, female and male adolescents in South Africa. A quantitative, correlational methodology was followed with a stratified random sample of 662 grade 10-12 learners from schools across the Eden district, Western Cape Province. These adolescents completed a biographical questionnaire, the Suicidal Ideation Questionnaire (SIQ,

Adolescent Version), the Life Stressors and Social Resources Inventory (LISRES, Youth Form) and the Bar-On Emotional Quotient Inventory, Youth Version (Bar-On EQI). The total sample of adolescents (N = 229) with a high suicide risk brings the incidence of suicide behaviour to 34.6% for the current study. The total group also reported higher levels of EI in comparison with normative samples studied by Bar-On and Parker (2000) and Koen (2008).

The major contribution of this study is the presence of gender and racial differences in the nature and quality of interpersonal relationships, EI, and the extent to which these factors influence risk towards suicide behaviour. Among the male adolescents, poor adaptability and stress management EI led to an increase of suicide behaviour when parents and school as stressors were high. The findings showed that the White adolescent group with low and high adaptability EI led to a rise in suicide behaviour when increased levels of friends as stressor were reported, but the presence of poor adaptability EI was still associated with much higher suicide levels among this group. Among the Coloured adolescent sample, the adolescents with higher levels of interpersonal EI displayed a greater increase in suicide behaviour, with an increase in friends as stressor. This was found to be more pronounced when compared with the Coloured adolescents who reported low levels of interpersonal EI. Regarding resources, the total group of adolescents reported a strong negative correlation between high levels of interpersonal EI and suicide behaviour when there was an increase of parents as resource. Findings further indicated that there was a decrease in suicide behaviour for the total group of adolescents with higher adaptability EI when there was an increase of boy/girlfriend as resource. Among the adolescents with low levels of adaptability EI, there was a risk of displaying higher levels of suicide behaviour, regardless if support was received from a boy/girlfriend. Lastly, high levels of interpersonal EI showed a strong negative correlation with suicide behaviour among all the adolescents who experienced increases in boy/girlfriend as a resource. Interestingly, although expected that there would be a strong positive correlation between low levels of interpersonal EI and suicide behaviour, this correlation was positive irrespective if boy/girlfriend as a resource increased or not.

The findings of this study recommend EI skills training in mental health settings and educational curriculums in the prevention and intervention of suicide behaviour among

adolescents. The implementation of programmes aimed at enhancing social support and skills for parents, families, the school, and adolescents, is also recommended. Additional research is recommended to explore the dynamics of other personal variables and nature of interpersonal relationships among the different gender and racial groups within the South African context. This could expand the knowledge of the risk and protective factors involved in adolescent suicide behaviour.

Key words: adolescents, suicide behaviour, South Africa, interpersonal stressors and resources, emotional intelligence, moderating effect, gender and racial differences

Globally, the high suicide rate has become a great public health crisis with an estimated one million lives lost annually, including 200,000 adolescents and young adults (Greydanus & Calles, 2007). In South Africa, adolescents, like their counterparts in the world, have been showing the same rising tendency in suicide behaviour[1]. Statistics indicate about 8,000 mortalities annually with half of it being among young people between the ages of 15-19 years of age (Maphula & Mudhovozi, 2012; Stark et al., 2010). Furthermore, there are about 160,000 attempted suicides in South Africa annually of which 30% are among the adolescent population (Burrows & Laflamme, 2007). In view of the relative high occurrence of adolescent suicide behaviour in South Africa, acquiring knowledge regarding its etiology and the prevention thereof is of immense importance.

International research has clearly identified that the level of stressors and resources complicating adolescents' experience of their interpersonal relationships are significant causal factors in suicide behaviour (Bridge, Goldstein, & Brent, 2006; King & Merchant, 2008; Whitlock, Wyman, & Moore, 2014). Healthy and positive interpersonal relationships, characterised by support in times of stress, have been found to be a major protective factor against suicide behaviour among adolescents (Bridge et al., 2006; Buitron et al., 2016; Chu, Saucier, & Hafner, 2010; Peltzer, Kleintjies, Van Wyk, Thompson, & Mashego, 2008). In contrast, adolescents at risk of suicide behaviour report more stress and conflict in their interpersonal relationships with associated feelings of isolation, disconnectedness, and hopelessness (Buitron et al., 2016; Van Orden et al., 2010). Additionally, a recent South African survey indicated that the presence of very serious emotional health problems could be attributed to the high levels of suicide behaviour amongst the adolescents (Reddy et al., 2013).

Emotional Intelligence (EI), indicative of emotional health, appears to play a very important role in the adolescent's ability to develop and maintain healthy positive interpersonal relationships (Bar-On, 2005). When considering the effect of EI on the vulnerability towards suicide, EI has been found to play a protective role in the

[1] In the current study suicide behaviour is used as a collective term referring to a continuum of self-destructive thoughts and behaviour ranging from suicidal ideation, suicide attempts and completed suicide. As suicidal ideation has been proved to be an important predictor for suicide risk behaviour among adolescents it was therefore measured in this study.

management of perceived stress, depression, hopelessness, and suicidal thoughts among adolescents (Ciarrochi, Deane, & Anderson, 2002; Downey, Johnston, Hansen, Birney, & Stough, 2010; Mikolajczak, Petrides, Coumans, & Luminet, 2009*)*. Although EI is acknowledged as an important individual characteristic for emotional health, there has been limited research to determine the extent to which it serves as a protective factor against suicide behaviour (Davis, 2012). Furthermore, there is a disparity in literature examining the moderating effect of EI on adolescents' interpersonal relationships and risk towards suicide behaviour. The practical significance of this study is related to the continued interest in incorporating EI skills training in educational curriculums to promote well-being and prevent suicide behaviour (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011; Jacob, Wadlington, & Enloe, 2012; Qualter, Gardner, & Whiteley, 2007). In addition, South African adolescents need empowerment through actively participating and contributing to their own psychological well-being (Patel, Flisher, Hetrick, & McGorry, 2007). Hence, gaining insight into the potential of EI as an effective protective factor in the relationship between psychosocial factors (interpersonal stressors and resources) and suicide behaviour among adolescents can be of immense value in this regard. The aim of this study will thus be to explore the role of EI in the relationship between the psychosocial factors and suicide behaviour among the South African adolescents.

In the following section, the influence of EI in the relationship between psychosocial factors and suicide behaviour is discussed. The focus of psychosocial factors is on the nature of interpersonal relationships of the adolescent, which can be either experienced as stressful or as important resources of support. These relationships include parents, family, friends, romantic partners, peers, and significant others at school, such as teachers.

Emotional intelligence, interpersonal relationships and adolescent suicide behaviour

Some research has linked EI to psychological well-being, life satisfaction, and better mental health amongst adolescents (Bar-On, 2005; Davis & Humphrey, 2012). EI influences how effectively an adolescent can express and manage his/her emotions, can understand others and relate with them, as well as cope with daily demands, challenges, and pressures (Bar-On, 2006; 2007). More specifically, the Bar-On model

(Bar-On, 1997) suggests that EI consists of five components, namely

- *Intrapersonal skills* that refer to the ability of an adolescent to be aware and understand his/her own emotions and to express his/her feelings and ideas.
- Secondly, *Interpersonal competencies* facilitate awareness, understanding, and sensitivity towards others' feelings, and assist the adolescent to form and maintain mutually satisfying relationships with others.
- *Adaptability* involves the flexibility to modify one's feelings and thoughts with changing situations, and the ability to solve personal and interpersonal problems.
- *Stress management* involves strategies that help an adolescent to tolerate and deal with stress as well as the ability to control strong emotions and impulses.
- Finally, *General mood* refers to an adolescent's ability to be optimistic, and to have and express positive emotions such as happiness (Bar-On, 1997; Bar-On & Parker, 2000). According to Bar-On (2006; 2007) emotionally intelligent adolescents are not only competent in forming and maintaining satisfying interpersonal relationships; they are also able to seek help and support more readily when in need. In contrast, adolescents who display poor EI are associated with poor interpersonal relationships characterised by inefficient interpersonal skills such as conflict, interpersonal insensitivity, and an inability to solve problems (Bar-On, 2006; 2007).

Recent literature reviews have emphasised the importance of social networks (i.e. relationships with parents, family, friends, peers, school) in understanding the risk and protective factors for suicide behavior during adolescence (Buitron et al., 2016; King & Merchant, 2008; Whitlock et al., 2014). The importance of these interpersonal relationships is consistent across multiple theories explaining suicide behavior (Miller, Esposito-Smythers, & Leichtweis, 2015). In this regard, the Cry of Pain Theory (Williams, 2001), the Integrative Motivational Volitional Model of Suicidal Behavior (O'Connor, 2011), and the Interpersonal Psychological Theory of Suicide (Joiner, 2005) suggest that inadequate support from social networks and unhealthy interpersonal relationships increase the risk for suicide behaviour. These theories underline developmental psychology research, which emphasises the significance of healthy interpersonal relationships with significant others for the adolescent's healthy socio-emotional development (Poulou, 2014; Tandon, Dariotis, Tucker, & Sonenstein,

2013). Not only do these relationships provide the adolescent with a sense of belonging, they are also an extremely important resource in providing support when an adolescent is dealing with a stressful situation (Moos & Holahan, 2003). In fact, research has shown that healthy relationships do not merely act as a buffer in stressful times, but also minimises negative psychological outcomes, including internalising and externalising behaviours (Tandon et al., 2013).

In contrast, adolescents having unhealthy relationships characterised by constant conflict, criticism, disapproval, expectations that are too high, control, and lack of support may feel quite isolated and disconnected, resulting in facing hardships alone (Buitron et al., 2016). A lack of support from a social network in a time of crisis can create vulnerability for the adolescent to generate, decide upon, and implement solutions to problems, often resulting in making a negative decision such as opting for suicide behaviour (Miller et al., 2015). To this extent, South African studies found that the majority of adolescents with high levels of suicide behaviour reported no or very little support from their various social systems (Gilreath, King, Graham, Flisher, & Lombard, 2009; Rasodi, 2013; Tancred, 2010). In the following section the role of EI on these various social systems and suicide behaviour is highlighted, namely relationships with the family, peers, and lastly, relationships within the school environment.

Emotional intelligence, family relationships and suicide behaviour

The EI model of Bar-On (1997; 2006; 2007) suggests that in comparison to adolescents with a poor EI, highly emotional intelligent adolescents are more competent in establishing and maintaining satisfying, quality, interpersonal relationships and are more effective in handling interpersonal conflict. It is also important to remember that in addition to EI influencing the quality of interpersonal relationships, it is very dependent on the nature of the relationship the adolescent has with his/her primary family system, namely the parents (Lekaviciene, & Antiniene, 2016). This means that the adolescent's parents provide an imperative source of information regarding healthy emotional development and management through observation, modeling, and social referencing (Hutt, Wang, & Evans, 2009; Morris, Silk, Steinberg, Myers, & Robinson, 2007; Southam-Gerow & Kendall, 2002). Parents that enjoy good EI, for example, will model the appropriate way of expressing and regulating emotions, exhibit emotional

flexibility, and adaptability in times of interpersonal conflict, and will encourage parent-adolescent communication of emotion in times of stress (Lekaviciene & Antiniene, 2016; Morris et al., 2007). Being sensitive to the emotional needs of a child and providing an emotionally warmer family climate result in the upbringing of an emotionally intelligent adolescent (Hutt et al., 2009). Furthermore, positive family attachment and authoritative parenting characterised by a high degree of responsiveness (warmth, acceptance, supportiveness, nurturance, realistic expectations) encourages the healthy autonomy of the adolescent, improves emotional and psychological functioning and decreases suicide risk (Connor & Reuter, 2006; Seiffge-Krenke, Kiuru, & Nurmi, 2010). All these factors seem to play a protective role towards the vulnerability of suicide behaviour as the emotionally intelligent adolescent will more likely seek support and solutions in stressful times within this type of healthy family environment (Connor & Reuter, 2006).

In comparison, parents with low EI are less able to offer emotional support to their child and their communication style is associated with conflict, aggressiveness, rigidity, and poor impulse control (Hutt et al., 2009; Lekaviciene & Antiniene, 2016). These parents are characterised by a lack in adapability to change, poor problem solving, and an inability to teach the child appropriate ways of expressing and regulating his/her emotions (Lekaviciene & Antiniene, 2016). Family dysfunction increases the vulnerability towards suicide behaviour of an adolescent because it tends to lead to problems of individual adjustment, such as regulating one's emotion and coping, as well as increasing the risk of mental health problems (Connor & Reuter, 2006). These adolescents are then more likely to view suicide behaviour as the only alternative to cope with emotional distress (Connor & Reuter, 2006). A significant connection between family functioning and adolescent suicide behaviour was found in families characterised by low levels of cohesion (emotional bonds) with both parents, poor emotional regulation from the mother, low familial adaptability, constant interpersonal conflict, rejection, and lastly, high levels of psychological control (guilt induction, personal criticism, inconsistency) from both parents (Sheftall, Mathias, Furr, & Dougherty, 2013; Van Renen & Wild, 2008).

Any other family disruption caused by either marital discord, parental separation/divorce, family violence, child maltreatment, and family psychiatric

conditions, can result in the adolescent feeling alienated and disconnected, thereby increasing their vulnerability towards suicide behaviour (Atwoli, Nock, Williams, & Stein, 2014; Qin, Mortensen, & Pedersen, 2009; Schmeelk-Cone, Pisani, Petrova, & Wyman, 2012; Vawda, 2012). The significant influence the family unit exerts on the life and well-being of an adolescent is further collaborated in several South African studies. These studies found that the majority of adolescents reported that experiencing high stressors in the family system was one of the major causes of increased levels of suicide behaviour (Gilreath et al., 2009; Rasodi, 2013; Tancred, 2010). In another local study by Pillay and Wassenaar (1997), adolescents reported that an argument with a family member, and in most cases a parent, preceded a suicide attempt.

The nature of the family environment also determines the adolescent's need and ability to form quality relationships with peers, friends, and romantic partners (Laible, Carlo, & Roesch, 2004; Louw & Louw, 2007). Establishing and maintaining friendships and/or romantic relationships with one's peers are significant milestones in fulfilling the adolescent's need for belonging and identity formation (Laible et al., 2004). Unfortunately, if the adolescent has poor family relationships, he/she can find it difficult to establish and maintain healthy peer and romantic connections, and are more at risk for peer pressure and associated negative risk behaviours, such as suicide behaviour (Kerr, Preuss, & King, 2006). Similarly, positive peer and romantic relationships may also moderate the relationship between negative parenting and suicide behaviour by providing compensatory social support (Kerr et al, 2006; Lansford, Criss, Pettit, Dodge, & Bates, 2003).

Emotional intelligence, peer relationships and suicide behaviour

According to Bar-On and Parker (2000), an adolescent who is proficient in understanding and managing the emotions and thoughts of others is more socially responsible, possesses effective listening skills, and exhibits empathy towards others. Various studies have also suggested that adolescents high in EI are seen to be more socially competent, have higher self-esteem, exhibit low anxiety levels, display prosocial behaviour, and can provide social support to others (Castillo, Salguero, Fernandez-Berrocal, & Balluerka, 2013; Charbonneau & Nicol, 2002; Mavroveli, Petrides, Reiffe, & Bakker, 2007; Rey, Extremera, & Pena, 2011; Von Salisch, Zeman, Luepschen, & Kanevski, 2014). A high EI is therefore strongly linked with peer

acceptance, satisfying interpersonal relationships, and seeking out social support that acts as protection against suicide behaviour among adolescents (Austin, Saklofske, & Egan, 2005; Birkeland, Breivik, & Wold, 2014; Rahgozar, Motahari, & Zolali, 2011). Feeling accepted, supported, and comfortable to discuss problems with friends and romantic partners in times of stress specifically, decrease the likelihood of suicide behaviour considerably (Kerr et al., 2006; Tancred, 2010).

On the other hand, adolescents at risk of suicide behaviour struggle to regulate and express their emotions, especially negative emotions, and have difficulty in being flexible and managing stress effectively (Peltzer et al., 2008; Zavala & López, 2012). Similarly, having difficulties in understanding, expressing, and managing one's own and others' emotions, play a substantial role in the adolescent's ability to form supportive relationships with his/her peers, friends, and significant others (Von Salisch et al., 2014). In this regard, a low self-esteem, frequent interpersonal conflicts with friends, peers, and romantic partners, bullying, and ineffective problem solving skills are the main risk factors associated with adolescent suicide behaviour (Brackett, Rivers, & Salovey, 2011; Daniel & Goldston, 2012; Peltzer, 2008; Petrides, Frederickson, & Furnham, 2004).

Moreover, literature has consistently shown that interpersonal stress related to close friendships and romantic relationships in the form of rejection, social isolation, conflict, teasing, shame, and humiliation, exert a greater negative emotional influence and is in the majority of cases a major cause of suicide attempts among adolescents (Buitron et al., 2016; Daniel & Goldston, 2012; Du Plessis, 2012; King & Merchant, 2008). According to Speckens and Hawton (2005), poor problem solving on an interpersonal level is especially relevant to adolescent suicide behaviour as this may lead to a depressed mood and a sense of hopelessness, if alternative solutions to a problem are not found. Alternatively, being depressed can also influence the rational problem-solving ability of an adolescent resulting in an increased risk of suicide (Speckens & Hawton, 2005).

Initiating and maintaining healthy positive relationships require effective social and emotional skills (Bar-On, 2006; Ruiz-Aranda, et al., 2012). However, as constructive positive relationships with peers can be for the psychological well-being of an adolescent, presence of unhealthy peer relationships can increase risk towards

negative behaviours, such as delinquency, mental health problems, and suicide behaviour (Kerr et al., 2006). Although social networking promotes connection to peers, it has been known to have harmful effects, such as suicide behaviour, when associated with cyberbullying (Slonje & Smith, 2008; Van Geel, Vedder, & Tanilon, 2014).

Since adolescents spend most of their time within a school environment, the role of EI and adolescents' positive or negative experiences within the school environment regarding their vulnerability towards suicide behaviour necessitates further deliberation.

Emotional intelligence, school environment and suicide behaviour

High EI has been found to be a strong predictor of educational success (Aviles, Anderson, & Davila, 2006). Ogundokun and Adeyemo (2010) concluded, a learner who is adept at emotional management could use these skills to manage stress and anxiety associated with assessment and examination. The ability to display effective interpersonal skills may also assist the adolescent to seek academic support from teachers, peers, and other significant resources in the school environment (Ogundokun & Adeyemo, 2010). Kidger, Araya, Donovan, and Gunnell (2012) also indicate that creating positive teacher relationships and feeling connected to the school environment increase the level of emotional well-being amongst adolescents and lower the incidence of emotional and behavioural difficulties, such as suicide behaviour. In studies conducted by Cheng et al. (2009) and Sun and Hui (2007), lower levels of suicide behaviour strongly correlated with adolescents feeling a sense of belonging at the school and having an overall positive perception of teachers being supportive. These studies emphasised that a friendly, reliable, and supportive relationship with a teacher enabled troubled adolescents to disclose their problems more easily and seek the necessary help (Cheng et al., 2009; Sun & Hui, 2007).

Adolescents with ineffective social and emotional abilities tend to have more negative interactions with their teachers and fellow learners, and experience more punishment from teachers as they tend not to follow the school rules (Gagnon, Davidson, Cheifetz, Martineau, & Beauchamp, 2009; Peltzer & Pengpid, 2012; Shilubane, Ruiter, Bos, Reddy, & Van den Borne, 2014). Ineffective stress management

skills and anxiety associated with educational pressures can result in the adolescent expressing anger and aggression towards teachers and fellow learners, resulting in suspension or expulsion (Aviles et al., 2006). This not only creates the risk for further academic difficulties, but also other mental health problems, including suicide behaviour (Aviles et al., 2006; Gagnon et al., 2009; Peltzer & Pengpid, 2012; Shilubane et al., 2014).

From above-mentioned literature it could be deduced that the ability to talk about one's emotions in a constructive way, having support from family, friends, and significant others, as well as seeking out that support when experiencing emotional distress, appear to be major strategies identified in the prevention of suicide behaviour amongst adolescents (Du Plessis, 2012; Maphula & Mudhovozi, 2012; Rahgozar et al., 2011; Wesso, 2009). Against the backdrop that research on EI in adolescence and the relationship with suicide behaviour are still relatively young, this study aimed to explore the role of EI in the relationship between psychosocial factors (interpersonal stressors and resources) and suicide behaviour among South African adolescents.

Methodology

The objective of this study was to investigate the role of EI in the relationship between psychosocial factors and suicide behaviour among South African adolescents.

Research design

In order to achieve the objective of this study, a quantitative, non-experimental, correlational methodology was followed. The correlational research paradigm was preferable to consider the set of variables (suicide behaviour, psychosocal factors and emotional intelligence) and to determine the type and strength of the relationship between the different variables (Gravetter & Forzano, 2009).

Participants and data gathering

The total sample of participants comprised 662 grade 10-12 learners (ages 16-18) from 10 secondary schools in the Eden district, Western Cape Province. The average age of the participants was 17.51, with a standard deviation of 1.16. Participants were selected from the pool of the 29 secondary schools in the Eden district

by using a stratified random sampling technique. The population of the Eden district constitutes 10% of the total population of the Western Cape Province (5.8 million) and comprises seven (7) local municipalities that include the towns of Ladismith, Riversdale, Mossel Bay, George, Oudsthoorn, Knysna, and Plettenberg Bay. In Table 1 the frequency distribution of the single biographical variables is displayed. The sample included 387 females (58.5%) and 275 males (41.5%) with the racial group distribution as follows: 342 Black (51.7%), 253 Coloured (38.2%), and 67 White (10.1%).

Table 1

Frequency Distribution of Single Biographical Variables

Biographical variable		N	%
	Gender		
	Female	387	58.5
	Male	275	41.5
Total:		662	100.0
	Grade		
	10	23	3.5
	11	395	59.7
	12	244	36.9
Total:		662	100.0
	Race		
	Black	342	51.7
	Coloured	253	38.2
	White	67	10.1
Total:		662	100.0
	Home Language		
	Afrikaans	317	47.9
	Xhosa	318	48.0
	English	19	2.9
	Zulu	6	0.9
	SeSotho	0	0.0
	Setswana	0	0.0
	Other	2	0.3
Total:		662	100.0

Taking into account the demographic profile of the Eden district, statistics indicate a total population of about 575,000 of which 47,500 are adolescents between the ages of 15-19, with a larger female to male distribution. The three main racial groups in the Eden district area are Coloured (54%), Black (25%), and White (19%). The main languages spoken in this area are Afrikaans (71%) and Xhosa (18%), followed by English (7%) (Statistics South Africa, 2012).

In terms of ethical considerations, the Research Ethics Committee of the Faculty of Humanities, University of the Free State approved the study. Further permission was

granted by the Western Cape Department of Education to conduct the study and to contact the school principals. With the co-operation of the various school principals an assessment time was arranged for each specific school. An informational pamphlet on suicide prevention and a parental consent form were made available in the preferred home language of the parent and learner. Prior to the scheduled testing day, written informed consent was obtained from the parents. On the day of testing, the researcher and assistant provided more information to the learners in regards to the objectives of the research. Anonymity, confidentiality and voluntary participation were guaranteed with an opportunity to withdraw at any given time. Before testing commenced, each learner was asked to give written informed consent.

Due to copyright regulations the questionnaires could only be administered in English. The researcher employed an assistant with a psychological background and proficiency in the three main languages to assist with administering the questionnaires and translation.

The assistant received prior training in the management of the questionnaires and administrative duties to ensure the successful collection of data. The questionnaires were successfully completed within a two-hour period. A debriefing opportunity was available in case a learner experienced emotional distress after the completion of the questionnaires. Every school principal was also encouraged to contact the researcher if there was any learner or parent requiring further support. In addition, a telephonic follow-up was done two weeks after the specific school visit and testing.

Description of variables

In the current study suicide behaviour is the dependent variable and the psychosocial factors are the independent variable. EI is the intervening variable. With regard to suicide behaviour, a single total score was obtained for every participant. Five different scores were obtained for the independent variable, concerning the stressors and resources for Parents, Family, School, Friends and Boy/Girlfriend. Five different scores were used for EI, namely Intrapersonal, Interpersonal, Stress management, Adaptability, and General mood, and a total EI score was obtained. As stated in Article 1 (The effects of psychosocial factors on suicide behaviour among South African

adolescents and Article 2 (The relationship between emotional intelligence and suicide behaviour among South African adolescents), all the scales, except the intrapersonal scale of EI, provided sufficient reliability coefficients. The intrapersonal scale of EI was therefore not used in the subsequent analysis of the results.

The following instruments were used to measure the different variables.

Measuring instruments

A *biographical questionnaire,* compiled by the researcher, was used to gather information regarding grade, age, gender, and racial group.

The dependent variable was assessed by means of *the senior high school version of the Suicidal Ideation Questionnaire* (SIQ: Reynolds, 1988). This questionnaire measures the frequency and intensity of suicide thoughts reported by the participants and consists of 30 items that are answered on a seven-point Likert scale. Examples of questions ranged from "I thought about killing myself" to "I thought about hurting myself but not killing myself"'. The score of each item is added to yield a total raw score. The total suicide ideation score ranges from 0-180. According to Reynolds (1988) a total score of >31 can be considered as indicative of a high suicide risk. Pertaining to reliability, Reynolds (1988) reports a Cronbach alpha coefficient of 0.97 in an American study with adolescents. The reliability of the scale received a good report in South African studies by George (2009) and Du Plessis (2012), which reported Cronbach alpha coefficients of 0.95 and 0.97 respectively.

The youth form of the Life Stressors and Social Resources Inventory (LISRES: Moos & Moos, 1994) was used to measure the independent variable, namely sychosocial factors, and includes a wide range of stressors, as well as the social resources available to participants. The instrument consists of 209 items divided into two sections, namely Life Stressors and Social Resources. The inventory has a total of sixteen subscales, nine of which measure life stressors and seven measuring social resources. The Life Stressors subscales are: Physical Health (PH), Home and Money (HM), Parents (PAR), Siblings (SIB), Extended Family (FAM), School (SCH), Friends (FR), Boyfriend/Girlfriend (BG), and Negative Life Experiences (NLE). The Social Resources subscales are: Parents (PAR), Siblings (SIB), Extended Family (FAM), School (SCH), Friends (FR), Boyfriend/Girlfriend (BG), and Positive Life Experiences

(PLE). Some questions required a Yes or No answer, for example, “Have you moved to a worse home?”, “Has your relationship with your mother/stepmother changed for the better?” to certain questions that entailed the frequency (Never, Seldom, Sometimes, Often, Fairly often), for example, “Is she (mother/stepmother) critical or disapproving of you?”, “Do you have fun, joke or laugh with her?”. As the focus of this particular study related to the interpersonal domain of the adolescent, results of the Life Stressor and Social resources subscales, namely parents, Extended Family, School, Friends, and Boyfriend/Girlfriend were used. A high score on the stressor subscales indicates that participants experience the particular variable as stressful, while a high score on the resources subscale indicates the presence of adequate resources in a specific domain. The internal consistency index varies from between 0.79 to 0.88 for the stressor subscales and 0.78 to 0.91 for the Social resources subscales (Moos & Moos, 1994). A South African study conducted by Du Plessis (2012) reported Cronbach Alpha coefficients ranging between 0.74 and 0.96 for all subscales.

The intervening variable was assessed through *the youth version of the Bar-On Emotional Quotient Inventory* (EQI: Bar-On & Parker, 2000). This questionnaire measures the emotional and social functioning among children and adolescents and is suitable for participants aged 7-18 years of age. There is a short or longer version. The longer version was used in this study. This questionnaire consists of 60 items, takes 30 minutes to complete and measures the following seven subscales: Intrapersonal (Self-Regard, Emotional Self-Awareness, Assertiveness, Independence, Self-Actualisation), Interpersonal (Empathy, Social Responsibility, Interpersonal Relationships), Stress Management (Stress Tolerance, Impulse Control), Adaptability (Reality Testing, Flexibility, Problem Solving), General Mood (Optimism, Happiness), Positive Impression (Validity), and Inconsistency Index (Validity). The items are fixed by a four-point scale with a written response structure ranging from 1 = Very seldom or Not true of me to 4 = Very often true of me or True of me. Table 2 below illustrates one example of each subscale that was measured:

Table 2

Example of Items from the Six Emotional Intelligence Quotient Subscales

Emotional Intelligence subscales	Example of subscale item
1. **Intrapersonal**	*"It is easy for people to tell how I feel"*
2. **Interpersonal**	*"I care what happens to other people"*
3. **Adaptability**	*"It is easy for me to understand new things"*
4. **Stress Management**	*"I can stay calm when I am upset"*
5. **General Mood**	*"I am happy"*
6. **Positive Impression**	*"I like everyone I meet"*

The total EI score and scale scores are presented as standard scores and range from 0 to 240. A standard score in the range of 90 to 110 indicates effective emotional and social functioning. A score greater than 110 suggests the presence of enhanced emotional and social skills, while a score of less than 90 suggests that emphasis should be placed on enriching skills in that area. The subscales Positive Impression and Inconsistency form part of the validity index which serves as a built-in correction factor that automatically modifies the scale scores based on scores obtained from these two subscales. According to Bar-On (2006) this is a vital aspect for self-report measures to increase accuracy of results by reducing response bias. This scale had a Cronbach Alpha coefficient ranging from 0.65-0.90 in a study with 9 172 children and adolescents in America (Bar-On & Parker, 2000). This measurement was standardised for South African use by Van Rooyen and Partners in 2000, and in a recent South African study of adolescents, Cronbach Alpha coefficients ranging from 0.51 to 0.84 were reported (Du Plessis & Van Zyl, 2014).

Research question

In accordance with the reviewed literature the following research question was formulated:

Is the relationship between psychosocial factors and suicide behaviour being mediated or moderated by emotional intelligence?

To investigate this question, a specific statistical analysis procedure was followed. This is discussed in more detail in the following section.

Statistical analysis

According to the hierarchical regression analysis of Howell (2013), the possible role EI plays in the relationship between psychosocial factors (stressors and resources) and suicide behaviour (criterion) was explored. This possible role of EI refers to the question: Does EI as an intervening variable, mediate or moderate this relationship? A mediator variable is identified due to the extent it succeeds to explain the relationship between the predictor and criterion variable. Therefore, mediation refers to the situation where the relationship between the predictor variable and the criterion variable can be explained through their correlation with a third variable (the mediator). A moderator variable influences the direction and/or strength of the relationship between the predictor and criterion variables (Baron & Kenny, 1986; Field, 2013).

To determine whether the intervening variable(s) feature as a mediator or moderator in the relationship between the independent and dependent variables, the following steps in the hierarchical regression procedure were performed:

- The first step entailed the analysis of the single variables. One of the psychosocial variables was added to the regression equation to determine its unique contribution. Consequently, one of the EI scales was alo added to this equation (omitting the psychosocial variable) to deterimine the specific EI scale's unique contribution to the regression equation.
- During step two, both the independent and intervening variable (one of the psychosocial stressors or resources and one of the EI scales) were added to the equation. In this way the significant ***proportional*** contribution of each of the predictor variables to the prediction of the criterion variable (suicide behaviour) was determined.
- Step three comprised investigating the ***product*** between the independent variable (psychosocial scale) and EI (each scale separately) in the prediction of suicide behaviour.

When working with the product between two variables it is important to prevent multi-colonisation. For this purpose, the deviation scores of the particular variables were calculated followed by calculating the product between the two sets of deviation scores. The statistical analysis procedure is described in more detail below.

During the first step it was determined whether a specific psychosocial scale (for example parents as stressor) has a significant direct relationship with the level of suicide behaviour among the adolescents. If the variables are consequently added to the equation, the following deductions can be made:

- If the calculated ***Beta*** coefficient of the specific psychosocial scale (for example parents as stressor) is significant in Step 1, but insignificant in Step 2 (when one of the EI scales, for example stress management, is added), the assumption can be made that stress management is indeed a ***mediator*** variable in the specific relationship (between parents stressor and suicide behaviour).
- If the calcualted ***Beta*** coefficient of stress management (intervening variable) is significant in Step 1, but insignificant in Step 2, it is indicative that the variables are confounded and therfore considered as confounding variables (Gravetter & Wallnau, 2010).
- If the calculated ***Beta*** coefficient of the product term (Step 3) is significant, it can be assumed that there is a strong correlation present and therefore a significant ***moderator*** effect (Howell, 2013).

All analyses were performed using the SPSS programme (SPSS Incorporated, 2011). Both the 1% and the 5% levels of statistical significance were used in this study.

Results and discussion

Considering that the descriptive statistics (means, standard deviations, skewness, kurtosis, and correlations) of all the relevant independent variables were already determined and discussed in the previous two articles (full titles mentioned above), attention is given to the research hypothesis.

A moderated hierarchical regression analysis was performed to investigate whether the different EI scales did mediate or moderate the relationship between the psychosocial factors (stressors and resources) and suicide behaviour among the adolescents. The psychosocial factors have five stressors and five resources relating to the same groups of people, namely parents, family, friends, school, and boy/girlfriend. With regards to the EI scales, there are four subscales, namely Interpersonal, Stress management, Adaptability, General mood, as well as the Total EI score that were used as the intervening variable in the analysis. Suicide behaviour was measured with a

single total score. With regard to the total EI score, the minimum score obtained was 78 and the highest was 231. With regard to the total EI score, a mean score of 167.24 and a standard deviation of 26.01 were calculated. In studies conducted by Bar-On and Parker (2000) and Koen (2008), mean scores of 100 and 78.63 respectively were reported. This suggests that in the current study the adolescents reported a higher total emotional intelligence than those in the studies of Bar-On and Parker (2000) and Koen (2008).

Concerning suicide behaviour, results from this study suggest that a total of 34.6% (N = 229) adolescents of the total number (N = 662) fell into the high risk group of suicide behaviour. In other studies, conducted amongst adolescents in different regions of South Africa, suicide behaviour ranged from 19% to as high as 39% (George, 2009; Meehan, Peirson, & Fridjhon, 2007; Tancred, 2010).

During the analysis that was performed and discussed in Article 1 (The effects of psychosocial factors on suicide behaviour among South African adolescents), gender was found to moderate the relationship between the psychosocial stressors and suicide behaviour. These stressors were parents, family and school. Race[2](Coloured vs White) moderated the correlation between the stressor, friends, and suicide behaviour. In Article 1, race (Black vs White) also moderated the relationship between the resources, friends, and suicide behaviour. The parent resource showed a significant negative correlation with suicide behaviour amongst the total group of adolescents. Consequently, an analysis was performed relating to the above factors and separately for the two gender and racial groups. Firstly, the possible role of EI in the relationship between the five stressors and suicide behaviour was investigated, followed by the relationship between the five resources and suicide behaviour.

The role of the EI scales in the relationship between the five ***stressors*** and suicide behaviour is displayed and discussed in the following five tables. In Table 3 the role of EI in the relationship between parents, as stressor and suicide behaviour among the adolescents is explored.

[2] The Black, White, and Coloured racial groups have been referred to in this study. The use of these terms does not imply acceptance of historically racist attitudes and assumptions. The racial groups have been used for comparison of conditions between these broad population groups within this study and for comparison of findings between different studies.

Table 3

Hierarchical Regression Analysis between the Independent Variable (Stressor Parents), the Dependent Variable (Suicide Behaviour) and the Intervening Variables (EI) for the Two Genders (Females and Males)

Step	Stressor: Parents (SP)		Beta coefficient Adaptability (AA)		SPXAA	
	Girls	Boys	Girls	Boys	Girls	Boys
1	.384**	.250**				
Alt. 1			.023	-.131*		
2	.384**	.257**	.004	-.108		
3	.384**	.263**	.003	-.160*	.009	-.151*
Step	**Stressor: Parents (SP)**		**Beta coefficient General Mood (GM)**		**SPXGM**	
	Girls	**Boys**	**Girls**	**Boys**	**Girls**	**Boys**
1	.384**	.250**				
Alt. 1			-.027	-.107		
2	.384**	.251**	-.030	-.079		
3	.392**	.257**	-.026	-.112	.042	-.074
Step	**Stressor: Parents (SP)**		**Beta coefficient Interpersonal (IP)**		**SPXIP**	
	Girls	**Boys**	**Girls**	**Boys**	**Girls**	**Boys**
1	.384**	.250**				
Alt. 1			.121*	.023		
2	.380**	.248**	.057	.034		
3	.378**	.248**	.058	.034	.029	.000
Step	**Stressor: Parents (SP)**		**Beta coefficient Stress Management (SM)**		**SPXSM**	
	Girls	**Boys**	**Girls**	**Boys**	**Girls**	**Boys**
1	.384**	.250**				
Alt. 1			-.209**	-.195**		
2	.358**	.239**	-.186**	-.186**		
3	.351**	.254**	-.185**	-.221**	-.037	-.132*
Step	**Stressor: Parents (SP)**		**Beta coefficient EI Total (EI)**		**SPXEI**	
	Girls	**Boys**	**Girls**	**Boys**	**Girls**	**Boys**
1	.384**	.250**				
Alt. 1			-.064	-.149*		
2	.381**	.247**	-.068	-.114		
3	.384**	.253**	-.066	-.170*	.022	-.124

** $p \leq 0.01$
* $p \leq 0.05$

From Table 3 it is evident that no EI scales managed to feature as a ***mediator*** between the relationship of parents as stressor and suicide behaviour. Because the independent variable (parents as stressor) showed a significant correlation with suicide behaviour in Step 1 and Step 2, the assumption can be made that the relationship between parents as stressor and suicide behaviour is not dependent on the third variable (EI).

From Table 3, it can be seen that the product term (β = -0.151; p = 0.029) between ***adaptability EI*** and ***parents as stressor*** reported significance on the 5% level. This means that adaptability EI was found to act as a moderator variable (Model 3) in the relationship between parents as stressor and suicide behaviour for the ***male adolescents***. The nature of this moderating effect was further explored through calculating the low and high scores of the male adolescents on the adaptability EI scale (moderator variable) in the relationship between parents as stressor and suicide behaviour. For this purpose, two separate regression lines were computed for the male adolescents – one for those who scored high on adaptability EI (on or higher than the 75th percentile, N = 80; a score of 31 or more) and one for those who scored low on adaptability EI (on or lower than the 25th percentile; N = 69; a score of 23 or lower). The regression lines are illustrated in Figure 1.

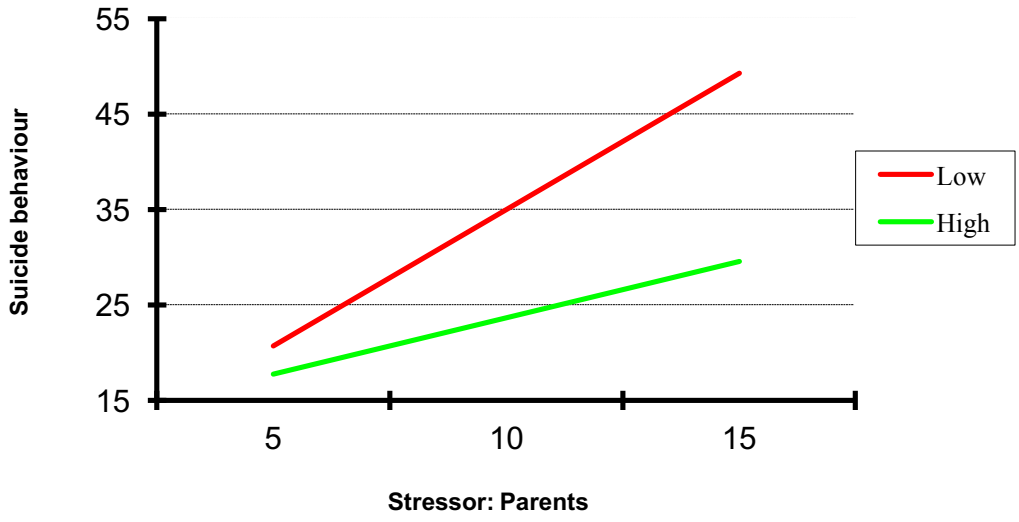

Figure 1. Regression lines for the male adolescents with low and high levels of adaptability EI with stressor parents as predictor of suicide behaviour

From Figure 1, it is clear that the male adolescents with low levels of adaptability EI show a rapid increase in the regression line (slope = 2.858) with a positive correlation (r = 0.402; p = 0.002) between parents as stressor and suicide behaviour. For the male adolescents with high levels of adaptability EI, the increase is evidently slower (slope = 1.183) with a positive correlation (r = 0.241; p = 0.063) between the two variables. Thus the strength between parents as stressor and suicide behaviour differ between the two groups. With an increase of parents as stressor, the male adolescents with high levels of adaptability EI show a smaller increase in suicide behaviour in comparison with those male adolescents that have low levels of

adaptability EI. These findings are supported by literature which states that adaptability is extremely important in light of the multiple biological, emotional and social changes an adolescent undergoes (Bar-On, 2006; 2007; Berger, 2011). There is specifically a great shift and therefore more potential for conflict within the parents-adolescent relationship due to the increased need for more autonomy and less family contact (Laible et al., 2004). The inability to change decision-making behaviour in response to a changing environment resulting in poor problem solving abilities, has been found to positively correlate with suicide behaviour among adolescents (Jollant et al., 2007; Reinecke & Didie, 2005). Furthermore, parents who are not able to offer emotional support for their adolescent lack the ability to adapt to change, have poor problem solving skills, and cannot teach the child appropriate ways of expressing and regulating his/her emotions (Hutt et al., 2009; Lekaviciene & Antiniene, 2016). In this regard, South African studies have validated that parent-adolescent relationships that display conflict, control, rigidity, and poor cohesion heavily impact the risk towards suicide behaviour among adolescents (Gilreath et al., 2009; Pillay & Wassenaar, 1997; Rasodi, 2013; Van Renen & Wild, 2008). The reason why low adaptability as an EI skill moderated the relationship between parents as a stressor and suicide behaviour among the males more, might be attributed to the fact that males are encouraged to be stronger and more independent, to not express any negative emotions, and to avoid social support when faced with a stressful situation (Netshiombo & Mashamba, 2012; Zimmer-Gembeck & Skinner, 2008). Aiken (2010) concludes that male adolescents with high levels of suicide behaviour reported having unhealthy relationships with their parents, specifically their mothers, characterised by emotional invalidating behaviour (conflict, criticism, disagreement) and poor joint problem solving strategies. Additionally, these male adolescents reported increased levels of hostility and rejectivity towards their parents (Aiken, 2010). Another factor to take into account is that at risk male adolescents are also more predisposed towards externalising behaviours such as delinquency and substance abuse, leading to more conflict and disagreement with parents (Lansford et al., 2003; Peltzer & Pengpid, 2012; Schlebusch, 2005).

The product term (β = -0.132; p = 0.049) between ***stress management EI*** and ***parents as stressor*** (Table 3) shows a significant correlation on the 5% level of significance. This means that stress management EI was found to act as as a moderator

variable (Model 3) in the relationship between parents as stressor and suicide behaviour for the ***male adolescents***. The nature of the moderating effect was further explored through calculating the low and high scores of the male adolescents on the stress management EI scale (moderator variable) in the relationship between parents as stressor and suicide behaviour. For this purpose, two separate regression lines were computed for the male adolescents – one for those who scored high on stress management EI (on or higher than the 75th percentile, N = 81; a score of 39 or more) and one for those who scored low on stress management EI (on or lower than the 25th percentile; N = 65; a score of 27 or lower). The regression lines are illustrated in Figure 2.

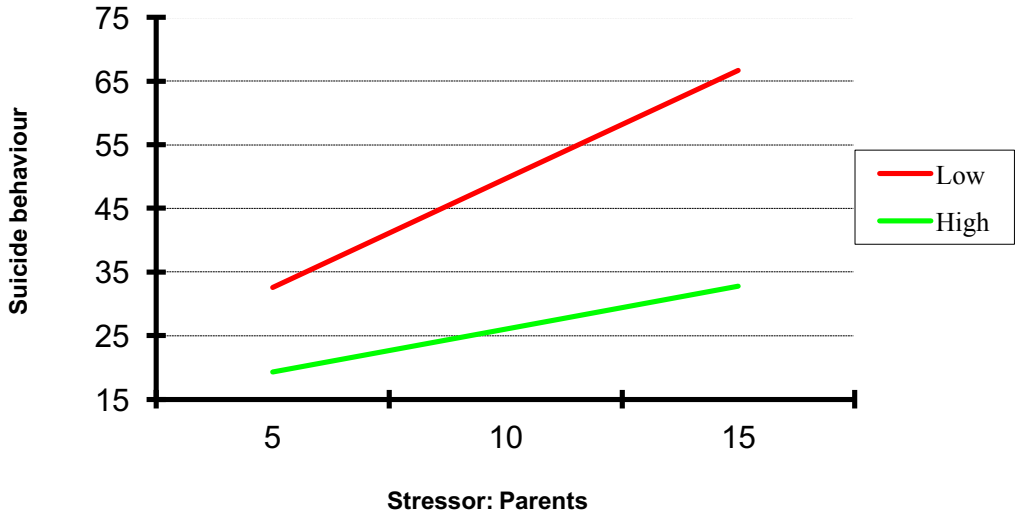

Figure 2. Regression lines for the male adolescents with low and high levels of stress management EI with stressor parents as predictor of suicide behaviour

From Figure 2 it is evident that male adolescents with low levels of stress management EI show a rapid increase in the regression line (slope = 3.409) with a positive correlation (r = 0.375; p = 0.000) between parents as stressor and suicide behaviour. Male adolescents with high levels of stress management EI show a much slower increase (slope = 1.341) with a positive correlation (r = 0.212; p = 0.017) between the two variables. These results suggest that with an increase of parents as stressor, male adolescents with high levels of stress management EI show a smaller increase in suicide behaviour. In comparison, male adolescents who show an increase on parents as stressor and display lower levels of stress management EI reported a

higher increase in suicide behaviour. These results are collaborated in various studies suggesting that the ability to tolerate and manage stress moderates the association between stressful experiences, such as interpersonal relationships, and suicide behaviour for adolescents at risk (Cha & Nock, 2009; Gratz & Roemer, 2004; Peltzer et al., 2008). With regard to parents as stressor, South African studies have confirmed that if parent-adolescent relationships are characterised by constant conflict, an over-controlling parenting style, inflexibility of parents, and low levels of emotional cohesion, it will contribute to heightened suicide behaviour among adolescents (Gilreath et al., 2009; Pillay & Wassenaar, 1997; Rasodi, 2013; Van Renen & Wild, 2008). The findings that stress management EI moderated the relationship between parents as a stressor and suicide behaviour in the male adolescents more than the female adolescents might be contributed to innate and socialised gender differences. Male adolescents specifically are reluctant to express emotion, seem to place more importance on trying to alleviate stress on their own accord, and avoid seeking help from family or peers when dealing with interpersonal stressors (Hampel & Petermann, 2005; Zimmer-Gembeck & Skinner, 2008). This is in contrast to the female adolescents who prefer to discuss problems and seek out support (Nolen-Hoeksema, 2012). Unfortunately, male adolescents who experience conflict and detachment from parents are more predisposed to substance abuse and delinquent behaviour to alleviate stress (Lansford et al., 2003; Peltzer & Pengpid, 2012; Schlebusch, 2005). This can lead to a further increase of conflict in an already strained parent-adolescent relationship and consequently vulnerability towards suicide behaviour (Lansford et al., 2003; Peltzer & Pengpid, 2012; Schlebusch, 2005).

In Table 4, the role of EI in the relationship between family as stressor and suicide behaviour among the adolescents was investigated. Seeing that gender was found to be a moderator between these two variables in Article 1 (family as stressor and suicide behaviour), analysis for the two genders was done separately.

Table 4

Hierarchical Regression Analysis between the Independent Variable (Stressor Family), the Dependent Variable (Suicide Behaviour) and the Intervening Variables (EI) for the Two Genders (Females and Males)

Step	Stressor: Family (SF)		Beta coefficient Adaptability (AA)		SFXAA	
	Female	Male	Female	Male	Female	Male
1	.248**	.072				
Alt. 1			.023	-.131*		
2	.248**	.075	.014	-.146*		
3	.248**	.072	.007	-.131*	.064	.044
Step	**Stressor: Family (SF)**		**Beta coefficient General Mood (GM)**		**SFXGM**	
	Female	**Male**	**Female**	**Male**	**Female**	**Male**
1	.248**	.072				
Alt. 1			-.027	-.107		
2	.247**	.071	-.034	-.134*		
3	.246**	.067	-.033	-.127	-.012	.020
Step	**Stressor: Family (SF)**		**Beta coefficient Interpersonal (IP)**		**SFXIP**	
	Female	**Male**	**Female**	**Male**	**Female**	**Male**
1	.248**	.072				
Alt. 1			.121*	.023		
2	.248**	.072	.115*	.000		
3	.242**	.077	.116*	.023	.031	.091
Step	**Stressor: Family (SF)**		**Beta coefficient Stress Management (SM)**		**SFXSM**	
	Female	**Male**	**Female**	**Male**	**Female**	**Male**
1	.248**	.072				
Alt. 1			-.209**	-.195**		
2	.228**	.046	-.179**	-.213**		
3	.228**	.048	-.178**	-.218**	.004	-.024
Step	**Stressor: Family (SF)**		**Beta coefficient EI Total (EI)**		**SFXEI**	
	Female	**Male**	**Female**	**Male**	**Female**	**Male**
1	.248**	.072				
Alt. 1			-.064	-.149*		
2	.244**	.064	-.058	-.175**		
3	.244**	.062	-.058	-.169*	.012	.016

*** p ≤ 0.01*
** p ≤ 0.05*

The results in Table 4 show that none of the EI scales was found to be a mediator or moderator in the relationship between family as stressor and suicide behaviour.

In Table 5, the role of EI in the relationship between friends as stressors and suicide behaviour among adolescents was explored. Seeing that race (Coloured vs White) was found to be a moderator between these two variables in Article 1 (The

effects of psychosocial factors on suicide behaviour among South African adolescents), the analysis for the two racial groups (Coloured vs White) was done separately.

Table 5

Hierarchical Regression Analysis between the Independent Variable (Stressor Friends), the Dependent Variable (Suicide Behaviour) and the Intervening Variables (EI) for the Two Racial Groups (Coloured vs White)

Step	Stressor: Friends (SR)		Beta coefficient Adaptability (AA)		SRXAA	
	White	Coloured	White	Coloured	White	Coloured
1	.201**	.369**				
Alt. 1			-.006	-.039		
2	.201**	.375**	.009	-.078		
3	.183**	.381**	.020	-.079	.122*	.089
Step	**Stressor: Friends (SR)**		**Beta coefficient General Mood (GM)**		**SRXGM**	
	White	**Coloured**	**White**	**Coloured**	**White**	**Coloured**
1	.201**	.369**				
Alt. 1			-.069	-.080		
2	.196**	.376**	-.060	-.115		
3	.196**	.376**	-.060	-.115	.007	-.003
Step	**Stressor: Friends (SR)**		**Beta coefficient Interpersonal (IP)**		**SRXIP**	
	White	**Coloured**	**White**	**Coloured**	**White**	**Coloured**
1	.201**	.369**				
Alt. 1			.063	.164**		
2	.205**	.354**	.073	.105		
3	.205**	.347**	.072	.120*	-.003	.132*
Step	**Stressor: Friends (SR)**		**Beta coefficient Stress Management (SM)**		**SRXSM**	
	White	**Coloured**	**White**	**Coloured**	**White**	**Coloured**
1	.201**	.369**				
Alt. 1			-.172**	-.252**		
2	.173**	.332**	-.152**	-.193**		
3	.173**	.343**	-.153**	-.197**	.007	.052
Step	**Stressor: Friends (SR)**		**Beta coefficient EI Total (EI)**		**SRXEI**	
	White	**Coloured**	**White**	**Coloured**	**White**	**Coloured**
1	.201**	.369**				
Alt. 1			-.085	-.107		
2	.193**	.366**	-.072	-.113		
3	.192**	.372**	-.067	-.111	.029	.063

*** p ≤ 0.01*
** p ≤ 0.05*

From Table 5 it is evident that none of the EI scales managed to act as a ***mediator*** in the relationship between friends as stressor and suicide behaviour. Because the independent variable (friends as stressor) showed a significant correlation with suicide behaviour in Step 1 and Step 2, the assumption can be made that the relationship between friends as stressor and suicide behaviour is not dependent on the third variable (EI).

It is, however, evident from Table 5 that the product term ($\beta = 0.122$; $p = 0.016$) between ***adaptability EI*** and ***friends as stressor*** for specifically the ***White adolescents*** is on the 5% level of significance. This means that adaptability EI was found to act as a moderator variable (Model 3) in the relationship between friends as stressor and suicide behaviour for the White adolescents. The nature of this moderating effect was further explored by calculating the low and high scores of the White adolescents on the adaptibility EI scale (moderator variable) in the relationship between friends as stressor and suicide behaviour. For this purpose, two separate regression lines were computed for the White adolescents – one for those who scored high on adaptability EI (on or higher than the 75th percentile, N = 20; a score of 34 or more) and one for those who scored low on adaptability EI (on or lower than the 25th percentile; N = 20; a score of 27 or lower). The regression lines are illustrated in Figure 3.

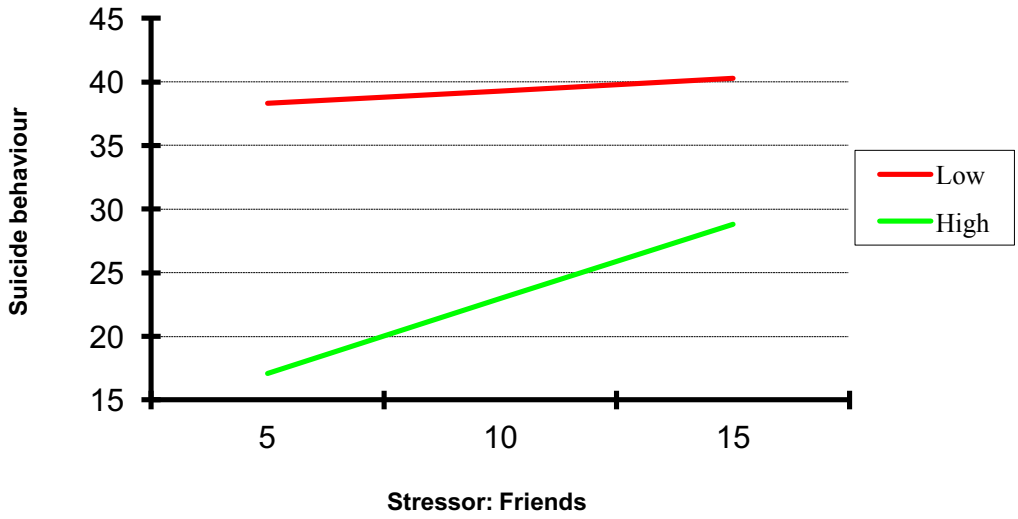

Figure 3. Regression lines for the White adolescents with low and high levels of adaptability EI with stressor friends as predictor of suicide behaviour

It is clear from Figure 3 that, among the White adolescents with low levels of adaptability EI, there is almost no incline in the regression line (slope = 0.195) with an insignificant correlation ($r = 0.014$; $p = 0.953$) between friends as stressor and suicide behaviour. However, among the White adolescents with higher levels of adaptability EI there is an incline in the regression line (slope = 1.177) with a positive correlation ($r = 0.391$; $p = 0.088$) between the two variables. These results suggest that there is a difference among the two groups with regard to the strength of the relationship between friends as stressor and suicide behaviour. Among the White adolescents with higher

levels of adaptability EI, there is a higher increase in suicide behaviour when the level of friends as stressor also increases**.** Bearing in mind that Bar-On and Parker (2000) link high adaptability EI with adolescents who can be flexible, realistic, effectively manage emotions, and generate positive solutions with changing situations, this finding is interesting. Contemporary literature specifically indicates that the inability to be flexible and generate positive solutions can lead to an adolescent feeling helpless and hopeless, resulting in a vulnerability towards suicide behaviour (Jollant et al., 2007; Miranda, Gallagher, Bauchner, Vaysman, & Marroquín, 2012; Reinecke & Didie, 2005). These results might then be attributed to the stressful nature and subsequent negative effects of the friendships, reported by the sample of White adolescents, leading to an increase in suicide behaviour even when higher levels of adaptability are present. According to La Greca, Davila, and Siegel (2008), stress in relationships with friends and peers, specifically when it results in emotions of sadness and guilt, puts an even higher demand on the adolescent's emotional and social resources to cope. Since friendships are viewed as important indicators regarding an adolescent's level of popularity, social status, and self-concept, a loss or conflict of a friendship could amplify emotional distress and therefore increase the risk for suicide behaviour (Buitron et al., 2016; Daniel & Goldston, 2012; Gagnon et al., 2009; Laible et al., 2004). This is supported by research that found experiencing acute and/or chronic interpersonal stress from friends is one of the major causes of suicide attempts among adolescents (Buitron et al., 2016; Daniel & Goldston, 2012; Du Plessis, 2012). Even though the sample of White adolescents were small, studies by Basson (2008) and Tancred (2010) indicate that due to the more westernized individualistic culture associated with the White adolescent population, there is a tendency to place greater importance on friendships when compared to the family. It is however worth noting that even if this increase is greater in comparison with the White adolescents who display lower levels of adaptability EI, it is evident that this group (low adaptability) still generally reported higher levels of suicide behaviour ($\overline{X}$ = 38.55) than the White adolescents with high levels of adaptability EI ($\overline{X}$ = 17.65).

Furthermore, it appears from Table 5 that the product term ($\beta = 0.132$; $p = 0.026$) between ***interpersonal EI*** and ***friends as stressor*** shows a 5% level of significance among the ***Coloured adolescents***. This suggests that interpersonal EI was found to act as a moderator variable (Model 3) in the relationship between friends as stressor and

suicide behaviour for the Coloured adolescents. The nature of this moderating effect was further explored through calculating the low and high scores of the Coloured adolescents on the interpersonal EI scale (moderator variable) in the relationship between friends as stressor and suicide behaviour. For this purpose, two separate regression lines were computed for the Coloured adolescents – one for those who scored high on interpersonal EI (on or higher than the 75th percentile, N = 70; a score of 41 or more) and one for those who scored low on interpersonal EI (on or lower than the 25th percentile; N = 62; a score of 32 or lower). The regression lines are illustrated in Figure 4.

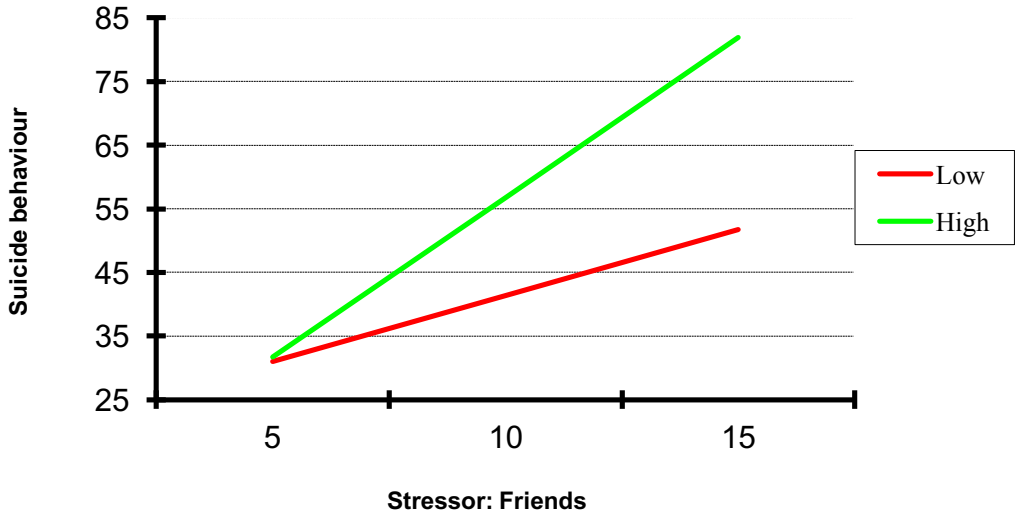

Figure 4. Regression lines for the Coloured adolescents with low and high levels of interpersonal EI with stressor friends as predictor of suicide behaviour

It is clear from Figure 4 that, among the Coloured adolescents with high levels of interpersonal EI there is a rapid incline in the regression line (slope = 5.019) with a positive correlation (r = 0.504; p = 0.000) between friends as stressor and suicide behaviour. Among the Coloured adolescents with lower levels of interpersonal EI the incline in the regression line is much slower (slope = 2.071) with also a positive correlation (r = 0.323; p = 0.011) between the two variables. These results suggest that there is a difference between the two groups with regard to the strength of the relationship between friends as stressor and suicide behaviour.

When there is an increase in friends as stressor, the Coloured adolescents with high levels of interpersonal EI display a greater increase in suicide behaviour in

comparison with the Coloured adolescents who reported low levels of interpersonal EI. Research has indicated that having effective interpersonal skills plays a meaningful role in the adolescents' ability to establish satisfying interpersonal relationships and being socially responsible, resulting in increased levels of intimacy, group acceptance, and social support (Austin & Saklofske, 2010; Ciarrochi, Chan, & Bajgar, 2001; Ruiz-Aranda et al., 2012). Unfortunately, there seems to be a negative side to this as being excessively interpersonally sensitive can also lead to an increased vulnerability towards suicide behaviour (Hall, Andrzejewski, & Yopchick, 2009). These adolescents can be more vulnerable in feeling rejected and isolated when faced with interpersonal conflicts (Hall et al., 2009). In a South African study, friends as a stressor was identified as a major cause of increased levels of suicide behaviour among specifically Coloured adolescents (Du Plessis, 2012). Coloured adolescents were previously seen more as part of a collectivistic culture where family support was seen as more important. These findings suggest that due to increased westernised influences and changing family structures, Coloured adolescents are now looking to peers and friends for emotional support (Tancred, 2010; Wesso, 2009). The majority of studies have concluded that relying on support from friends and peers reduced the risk of suicide behaviour (Czyz, Lui, & King, 2012; Miller et al., 2015). However, in a study conducted by Kaminski et al. (2010) it was found that relying more strongly on friends than other sources of support may increase vulnerability towards suicide behaviour when these friends are unable to provide positive social support in times of distress.

In Table 6 the role of EI in the relationship between school as stressor and suicide behaviour among the adolescents is illustrated.

Table 6

Hierarchical Regression Analysis between the Independent Variable (Stressor School), the Dependent Variable (Suicide Behaviour) and the Intervening Variables (EI) for the Two Genders (Females and Males)

Step	Stressor: School (SS)		Beta coefficient Adaptability (AA)		SSXAA	
	Female	Male	Female	Male	Female	Male
1	.370**	.275**				
Alt. 1			.023	-.131*		
2	.370**	.284**	.029	-.158**		
3	.370**	.283**	.026	-.165**	.031	-.034
Step	**Stressor: School (SS)**		**Beta coefficient General Mood (GM)**		**SSXGM**	
	Female	**Male**	**Female**	**Male**	**Female**	**Male**
1	.370**	.275**				
Alt. 1			-.027	-.107		
2	.369**	.275**	-.034	-.116		
3	.368**	.280**	-.034	-.124*	-.009	-.026
Step	**Stressor: School (SS)**		**Beta coefficient Interpersonal (IP)**		**SSXIP**	
	Female	**Male**	**Female**	**Male**	**Female**	**Male**
1	.370**	.275**				
Alt. 1			.121*	.023		
2	.371**	.276**	.115*	-.011		
3	.370**	.274**	.120*	.007	.028	.087
Step	**Stressor: School (SS)**		**Beta coefficient Stress Management (SM)**		**SSXSM**	
	Female	**Male**	**Female**	**Male**	**Female**	**Male**
1	.370**	.275**				
Alt. 1			-.209**	-.195**		
2	.347**	.252**	-.173**	-.183**		
3	.349**	.272**	-.173**	-.209**	.023	-.139*
Step	**Stressor: School (SS)**		**Beta coefficient EI Total (EI)**		**SSXEI**	
	Female	**Male**	**Female**	**Male**	**Female**	**Male**
1	.370**	.275**				
Alt. 1			-.064	-.149*		
2	.366**	.270**	-.051	-.162**		
3	.366**	.278**	-.050	-.180**	.004	-.063

** $p \leq 0.01$
* $p \leq 0.05$

From Table 6 it is evident that none of the EI scales managed to act as a ***mediator*** in the relationship between school as stressor and suicide behaviour. Because the independent variable (school stressor) showed a significant correlation with suicide behaviour in Step 1 and Step 2, the assumption can be made that the relationship between school as stressor and suicide behaviour are not dependent on the third variable (EI).

It is, however, evident from Table 6 that the product term (β = -0.139; p = 0.022) between ***stress management EI*** and ***school as stressor*** shows a 5% level of significance for the ***male adolescents***. This means that stress management EI was found to act as a moderator variable (Model 3) in the relationship between school as stressor and suicide behaviour for the male adolescents. The nature of this moderating effect was further explored by calculating the low and high scores of the male adolescents on the stress management EI scale (moderator variable) in the relationship between school as stressor and suicide behaviour. For this purpose, two separate regression lines were computed for the male adolescents – one for those that scored high on stress management EI (on or higher than the 75th percentile, N = 81; a score of 39 or more) and one for those who scored low on stress management EI (on or lower than the 25th percentile; N = 65; a score of 27 or lower). The regression lines are illustrated in Figure 5.

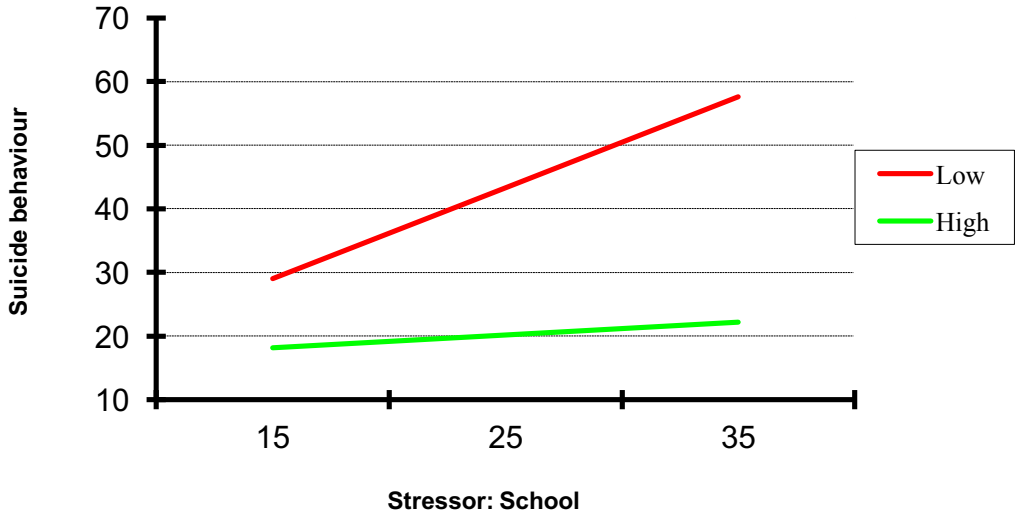

Figure 5. Regression lines for the male adolescents with low and high levels of stress management EI with stressor school as predictor of suicide behaviour

As can be seen from Figure 5, there is a relative rapid incline in the regression line (slope = 1.429) among the male adolescents with low levels of stress management EI, with a positive correlation (r = 0.322; p = 0.011) between school as stressor and suicide behaviour. Among the male adolescents with high levels of stress management EI the incline is very small (slope = 0.202) with an insignificant correlation between the two variables (r = 0.074; p = 0.524).

These results suggest that there is a difference among the two groups with

regard to the strength of the relationship between school as stressor and suicide behaviour. When there is an increase in school as stressor, the male adolescents with low levels of stress management EI display a relative increase in suicide behaviour in comparison with the male adolescents who reported high levels of stress management EI. School stress has been consistently linked to cause suicide behaviour among adolescents (Ang & Huan, 2006; Gagnon et al., 2009; Kidd et al., 2006; Peltzer & Pengpid, 2012). In a South African study, adolescents reported a decreased tolerance for stress and difficulties in managing associated negative emotions, leading to higher levels of suicide behaviour (Peltzer et al., 2008). Recently, a study by Hogan et al. (2010) also indicated that adolescents, and specifically male adolescents who are able to effectively manage stress by controlling emotional impulses and using effective stress coping strategies, had better school connectedness and achieved better academic success. According to Skinner and Zimmer-Gembeck (2007) this is due to the fact that male adolescents prefer direct problem-solving, distraction, avoidance, and disengagement as ways of managing the stress, as opposed to the female adolescents who rather seek out social support.

In Table 7 the role of EI in the relationship between boy/girlfriend as stressor and suicide behaviour among the adolescents is presented. Neither gender nor race was identified in Article 1 as a moderator in the relationship between boy/girlfriend as stressor and suicide behaviour and subsequently the whole group is analysed.

Table 7

Hierarchical Regression Analysis between the Independent Variable (Stressor Boy/Girlfriend), the Dependent Variable (Suicide Behaviour) and the Intervening Variables (EI)

Step	**Stressor: Boy/Girlfriend (SB)**	**Beta coefficient Adaptability (AA)**	**SBXAA**
1	.175**		
Alt. 1		-.027	
2	.175**	.018	
3	.179**	.026	0.043
Step	**Stressor: Boy/Girlfriend (SB)**	**Beta coefficient General Mood (GM)**	**SBXGM**
1	.175**		
Alt. 1		-.065	
2	.175**	-.032	
3	.174**	-.034	-.020
Step	**Stressor: Boy/Girlfriend (SB)**	**Beta coefficient Interpersonal (IP)**	**SBXIP**
1	.175**		
Alt. 1		.104**	
2	.181**	.156**	
3	.182**	.157**	.007
Step	**Stressor: Boy/Girlfriend (SB)**	**Beta coefficient Stress management (SM)**	**SBXSM**
1	.175**		
Alt. 1		-.210**	
2	.150**	-.189**	
3	.147**	-.192**	-.028
Step	**Stressor: Boy/Girlfriend (SB)**	**Beta coefficient EI Total (EI)**	**SBXEI**
1	.175**		
Alt. 1		-.095*	
2	.173**	-.048	
3	.171**	-.051	-.012

** *p ≤ 0.01*
* *p ≤ 0.05*

The results in Table 7 indicate that none of the EI scale acted as a mediator or moderator in the relationship between boy/girlfriend as stressor and suicide behaviour among the adolescents.

The role of the EI scales in the relationship between the five ***resources*** and suicide behaviour is displayed and discussed in the following five tables. In Table 8 the role EI plays in the relationship between parents as resource and suicide behaviour among the adolescents is explored.

Table 8

Hierarchical Regression Analysis between the Independent Variable (Resource Parents), the Dependent Variable (Suicide Behaviour) and the Intervening Variables (EI)

Step		**Beta coefficient**	
	Resource: Parents (RP)	**Adaptability (AA)**	**RPXAA**
1	-.245**		
Alt. 1		-.027	
2	-.246**	.011	
3	-.246**	.011	-0.038
Step		**Beta coefficient**	
	Resource: Parents (RP)	**General Mood (GM)**	**RPXGM**
1	-.245**		
Alt. 1		-.065	
2	-.243**	-.009	
3	-.243**	-.011	-.046
Step		**Beta coefficient**	
	Resource: Parents (RP)	**Interpersonal (IP)**	**RPXIP**
1	-.245**		
Alt. 1		.104**	
2	-.262**	.131**	
3	-.257**	.126**	-.135**
Step		**Beta coefficient**	
	Resource: Parents (RP)	**Stress management (SM)**	**RPXSM**
1	-.245**		
Alt. 1		-.210**	
2	-.216**	-.194**	
3	-.214**	-.195**	.021
Step		**Beta coefficient**	
	Resource: Parents (RP)	**EI Total (EI)**	**RPXEI**
1	-.245**		
Alt. 1		-.095*	
2	-.235**	-.045	
3	-.236**	-.044	-.044

** $p \leq 0.01$
* $p \leq 0.05$

From Table 8 it is evident that none of the EI scales managed to act as a ***mediator*** in the relationship between parents as resource and suicide behaviour. This suggests that if the relationship between the single variable (Model 1 – parents as resource) is significant, it will also be significant in Model 2 (where the EI scale is added).

It is, however, evident from Table 8 that the product term ($\beta = -0.135$; $p = 0.001$) between ***interpersonal EI*** and ***parents as resource*** shows a 1% level of significance among the ***total sample of adolescents***. This means that interpersonal EI was found to act as a moderator variable (Model 3) in the relationship between parents as resource and suicide behaviour. The nature of this moderating effect was further explored by calculating the low and high scores of the adolescents on the interpersonal EI scale

(moderator variable) in the relationship between parents as resource and suicide behaviour. For this purpose, two separate regression lines were computed for the total group of adolescents – one for those who scored high on interpersonal EI (on or higher than the 75th percentile, N = 140; a score of 42 or more) and one for those who scored low on interpersonal EI (on or lower than the 25th percentile; N = 151; a score of 31 or lower). The regression lines are illustrated in Figure 6.

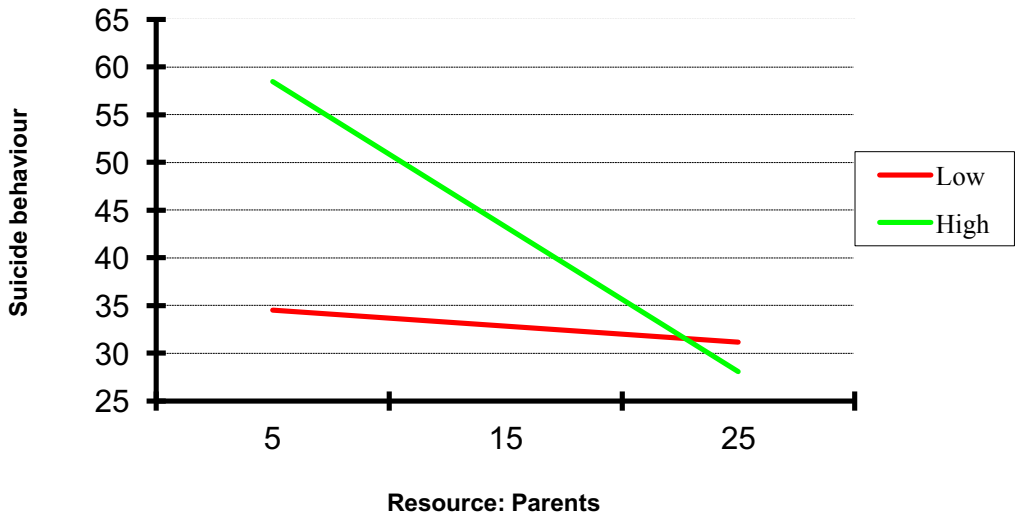

Figure 6. Regression lines for the adolescents with low and high levels of interpersonal EI with resource parents as predictor of suicide behaviour

As depicted in Figure 6, there is a relatively rapid decline in the regression line (slope = -3.042) among the adolescents with high levels of interpersonal EI, with a negative correlation (r = -0.363; p = 0.000) between parents as resource and suicide behaviour. Among the adolescents with low levels of interpersonal EI the decline is very small (slope = -0.336) with a small negative correlation between the two variables (r = -0.044; p = 0.632). These results suggest that there is a stronger negative correlation between the predictor and criterion among the adolescents with high levels of interpersonal EI, in contrast to the adolescents who reported low levels of interpersonal EI. With an increase in parents as resource, the adolescents with high levels of interpersonal EI display a more rapid decrease in suicide behaviour in comparison with the adolescents with low levels of interpersonal EI. These results confirm several international and local studies that found positive parents-adolescent relationships and healthy attachment as a vital protective factor against suicide behaviour (Connor & Reuter, 2006; Gillreath et al., 2009; Liable et al., 2004). Likewise, Bar-On (2006; 2007)

discovered that adolescents more competent in interpersonal skills are not only more competent in establishing and maintaining satisfying, quality interpersonal relationships, but also more effective in handling interpersonal conflict. Parents and adolescents who display good interpersonal skills exhibit emotional flexibility and adaptability in times of interpersonal conflict, and encourages parent-adolescent communication of emotion in times of stress (Lekaviciene & Antiniene, 2016; Morris et al., 2007).

Table 9 presents the results of the role of EI in the relationship between family as resource and suicide behaviour among the adolescents.

Table 9

Hierarchical Regression Analysis between the Independent Variable (Resource Family), the Dependent Variable (Suicide Behaviour) and the Intervening Variables (EI)

Step		**Beta coefficient**	
	Resource: Family (RF)	**Adaptability (AA)**	**RFXAA**
1	-.069		
Alt. 1		-.027	
2	-.064	-.028	
3	-.064	-.028	0.000
Step		**Beta coefficient**	
	Resource: Family (RF)	**General Mood (GM)**	**RFXGM**
1	-.069		
Alt. 1		-.065	
2	-.054	-.079	
3	-.053	-.079	.011
Step		**Beta coefficient**	
	Resource: Family (RF)	**Interpersonal (IP)**	**RFXIP**
1	-.069		
Alt. 1		.104**	
2	-.085*	.103**	
3	-.088*	.104**	-.031
Step		**Beta coefficient**	
	Resource: Family (RF)	**Stress management (SM)**	**RFXSM**
1	-.069		
Alt. 1		-.210**	
2	-.047	-.215**	
3	-.047	-.215**	.016
Step		**Beta coefficient**	
	Resource: Family (RF)	**EI Total (EI)**	**RFXEI**
1	-.069		
Alt. 1		-.095*	
2	-.045	-.108	
3	-.044	-.108	.014

** $p \leq 0.01$
* $p \leq 0.05$

The results shown in Table 9 indicate that none of the EI scales succeeded to act as a mediator or moderator in the relationship between family as resource and suicide behaviour among the adolescents.

In Table 10, the role of EI in the relationship between friends as resource and suicide behaviour that was explored is presented. Findings from Article 1 indicated that race (Black vs White) did moderate the relationship between friends as resource and suicide behaviour among the sample of adolescents. Subsequently, an analysis for the two separate groups was performed.

Table 10

Hierarchical Regression Analysis between the Independent Variable (Resource Friends), the Dependent Variable (Suicide Behaviour) and the Intervening Variables (EI) for the Two Racial Groups (Black vs White)

Step	Resource: Friends (RR)		Beta coefficient Adaptability (AA)		RRXAA	
	White	Black	White	Black	White	Black
1	-.129*	.039				
Alt. 1			-.006	-.039		
2	-.106	.031	-.082	.036		
3	-.105	.023	-.083	.032	.023	-.087
Step	**Resource: Friends (RR)**		**Beta coefficient General Mood (GM)**		**RRXGM**	
	White	**Black**	**White**	**Black**	**White**	**Black**
1	-.129*	.039				
Alt. 1			-.069	-.080		
2	-.109	.058	-.129*	-.059		
3	-.109	.060	-.132*	-.056	-.026	.014
Step	**Resource: Friends (RR)**		**Beta coefficient Interpersonal (IP)**		**RRXIP**	
	White	**Black**	**White**	**Black**	**White**	**Black**
1	-.129*	.039				
Alt. 1			.063	.164**		
2	-.170**	.009	.127*	.096		
3	-.170**	.003	.127*	.092	-.002	-.039
Step	**Resource: Friends (RR)**		**Beta coefficient Stress Management (SM)**		**RRXSM**	
	White	**Black**	**White**	**Black**	**White**	**Black**
1	-.129*	.039				
Alt. 1			-.172**	-.252**		
2	-.113*	.066	-.257**	-.184**		
3	-.115*	.064	-.249**	-.184**	-.044	-.024
Step	**Resource: Friends (RR)**		**Beta coefficient EI Total (EI)**		**RRXEI**	
	White	**Black**	**White**	**Black**	**White**	**Black**
1	-.129*	.039				
Alt. 1			-.085	-.107		
2	-.083	.064	-.166**	-.076		
3	-.082	.061	-.169**	-.078	.019	-.024

*** p ≤ 0.01*
** p ≤ 0.05*

Results from Table 10 show that none of the EI scales managed to act as a mediator or moderator in the relationship between friends as resource and suicide behaviour among the Black vs White adolescents.

In Table 11, the results of the role of EI in the relationship between school as resource and suicide behaviour among the adolescents that was investigated are presented.

Table 11

Hierarchical Regression Analysis between the Independent Variable (Resource School), the Dependent Variable (Suicide Behaviour) and the Intervening Variables (EI)

Step		**Beta coefficient**	
	Resource: School (RS)	**Adaptability (AA)**	**RSXAA**
1	-.045		
Alt. 1		-.027	
2	-.041	-.024	
3	-.041	-.024	-0.014
Step		**Beta coefficient**	
	Resource: School (RS)	**General Mood (GM)**	**RSXGM**
1	-.045		
Alt. 1		-.065	
2	-.034	-.067	
3	-.036	-.068	.034
Step		**Beta coefficient**	
	Resource: School (RS)	**Interpersonal (IP)**	**RSXIP**
1	-.045		
Alt. 1		.104**	
2	-.059	.105**	
3	-.057	.106**	-.059
Step		**Beta coefficient**	
	Resource: School (RS)	**Stress management (SM)**	**RSXSM**
1	-.045		
Alt. 1		-.210**	
2	-.026	-.217**	
3	-.026	-.216**	-.021
Step		**Beta coefficient**	
	Resource: School (RS)	**EI Total (EI)**	**RSXEI**
1	-.045		
Alt. 1		-.095*	
2	-.024	-.102*	
3	-.024	-.103*	.010

** $p \leq 0.01$
* $p \leq 0.05$

As can be seen from the results in Table 11, none of the EI-scales succeeded to act as a mediator or moderator in the relationship between school as resource and suicide behaviour.

In Table 12, the role of EI in the relationship between boy/girlfriend as resource and suicide behaviour among the adolescents was explored.

Table 12

Hierarchical Regression Analysis between the Independent Variable (Resource Boy/Girlfriend), the Dependent Variable (Suicide Behaviour) and the Intervening Variables (EI)

Step	**Resource: Boy/Girlfriend (RB)**	**Beta coefficient Adaptability (AA)**	**RBXAA**
1	.075		
Alt. 1		-.027	
2	.075	.005	
3	.065	.005	-0.089*
Step	**Resource: Boy/Girlfriend (RB)**	**Beta coefficient General Mood (GM)**	**RBXGM**
1	.075		
Alt. 1		-.065	
2	.087	-.052	
3	.079	-.062	-.059
Step	**Resource: Boy/Girlfriend (RB)**	**Beta coefficient Interpersonal (IP)**	**RBXIP**
1	.075		
Alt. 1		.104**	
2	.043	.138**	
3	.032	.129**	-.087*
Step	**Resource: Boy/Girlfriend (RB)**	**Beta coefficient Stress management (SM)**	**RBXSM**
1	.075		
Alt. 1		-.210**	
2	.093	-.218**	
3	.082	-.218**	-.063
Step	**Resource: Boy/Girlfriend (RB)**	**Beta coefficient EI Total (EI)**	**RBXEI**
1	.075		
Alt. 1		-.095*	
2	.092	-.079	
3	.091	-.083	-.027

** $p \leq 0.01$
* $p \leq 0.05$

From Table 12 it is evident that none of the EI scales managed to act as a ***mediator*** in the relationship between boy/girlfriend as resource and suicide behaviour. This suggests that the relationship between the single variable (Model 1 – boy/girlfriend as resource) is in all cases insignificant, and remains insignificant in Model 2 (where the EI scale is added).

It is, however, evident from Table 12 that the product term (β = -0.089; p = 0.048) between ***adaptability EI*** and ***boy/girlfriend as resource*** shows a 5% level of significance for the ***total group of adolescents***. This means that adaptability EI was

found to act as a moderator variable (Model 3) in the relationship between boy/girlfriend as resource and suicide behaviour. The nature of this moderating effect was further explored by calculating the low and high scores of the adolescents on the adaptability EI scale (moderator variable) in the relationship between boy/girlfriend as resource and suicide behaviour. For this purpose, two separate regression lines were computed for the total sample of adolescents – one for those who scored high on adaptability EI (on or higher than the 75th percentile, N = 187; a score of 31 or more) and one for those who scored low on adaptability EI (on or lower than the 25th percentile; N = 162; a score of 23 or lower). The regression lines are illustrated in Figure 7.

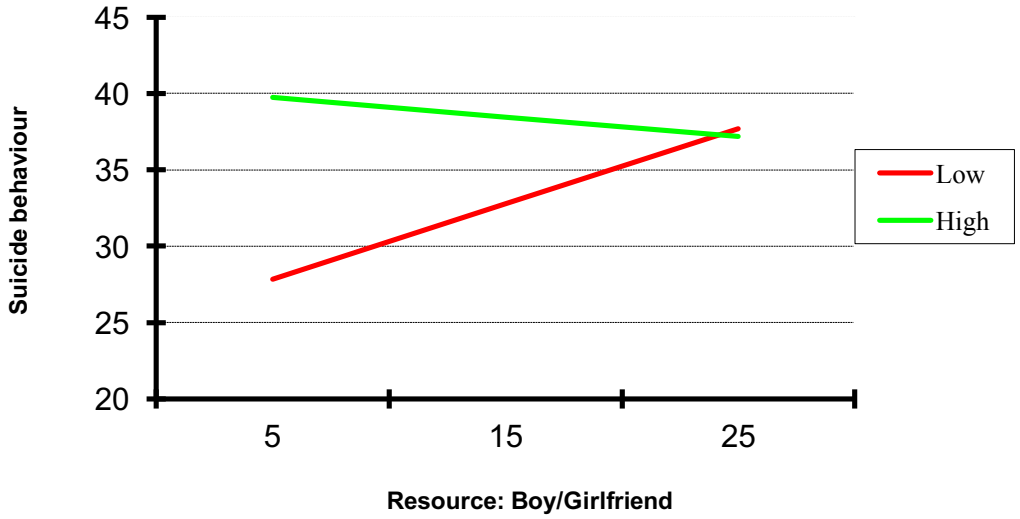

Figure 7. Regression lines for the adolescents with low and high levels of adaptability EI with resource boy/girlfriend as predictor of suicide behaviour

As can be seen from Figure 7, there is a relatively small decline in the regression line (slope = -0.255) among the adolescents with high levels of adaptability EI, with a negative correlation (r = -0.031; p = 0.724) between boy/girlfriend as resource and suicide behaviour. However, among the adolescents with low levels of adaptability EI there is an increase in the regression line (slope = 0.986) with a positive correlation (r = 0.142; p = 0.111) between the two variables.

These results imply that for the group of adolescents with high levels of adaptability EI, the correlation between boy/girlfriend as resource and suicide behaviour is insignificant. Furthermore, these findings indicate that an increase in this

resource (boy/girlfriend) does not affect the levels of suicide behaviour much. This group does, however, display a decrease in suicide behaviour when there is an increase in boy/girlfriend as resource. It would appear that when an adolescent displays low levels of adaptability EI, there will still be the risk of displaying higher levels of suicide behaviour, irrespective if he/she receives support from a boy/girlfriend.

According to La Greca and Harrison (2005), adolescent romantic relationships can be highly influential on the develepment and well-being of the adolescent. For instance, research suggests that positive, healthy romantic relationships can be an important source of support to counter social anxiety, depression, and suicide behaviour among adolescents (Campbell, 2012; King & Merchant, 2008; La Greca & Harrison, 2005). Positive, healthy relationships with a partner creates opportunities to develop important social-emotional competencies related to the management and expression of emotions and communication and interpersonal skills, in particular the ability to solve problems and conflict (Furman, McDunn, & Young, 2009). Recent literature on the nature of romantic relationships has indicated that South African adolescents' predominant motivation for becoming involved in a relationship was more related to peer pressure and peer status and not necessarily to engage in building a long-lasting, supportive relationship (Gevers, Jewkes, Mathews, & Flisher, 2012). These authors further suggest that due to the associated uncertainty of being in an intimate relationship, some adolescents can find it difficult to adapt to these demands and changes (Gevers et al., 2012). Taking the above results into account, it might suggest that even though adolescents experience a romantic relationship as generally supportive, those that lack adaptability and problem-solving skills still show greater vulnerability towards suicide behaviour. These adolescents struggle to be flexible in changing environments and managing the stress associated with romantic relationships effectively (Gevers et al., 2012; Peltzer et al., 2008; Zavala & López, 2012).

Secondly, results from Table 12 indicate that the product term (β = -0.087; p = 0.050) between ***interpersonal EI*** and ***boy/girlfriend as resource*** shows a 5%-level of significance ***for the total group of adolescents***. This suggests that interpersonal EI does act as a moderator variable in the relationship between boy/girlfriend as resource and suicide behaviour. The nature of this moderating effect was further explored by calculating the low and high scores of the adolescents on the interpersonal EI scale

(moderator variable) in the relationship between boy/girlfriend as resource and suicide behaviour. For this purpose, two separate regression lines were computed for the total sample of adolescents – one for those who scored high on interpersonal EI (on or higher than the 75th percentile, N = 140; a score of 42 or more) and one for those who scored low on interpersonal EI (on or lower than the 25th percentile; N = 151; a score of 31 or lower). The regression lines are illustrated in Figure 8.

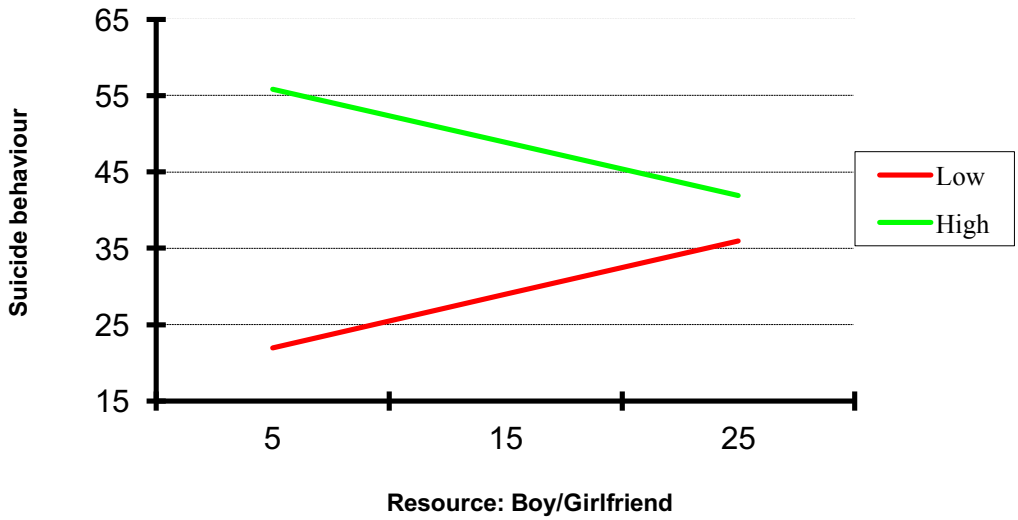

Figure 8. Regression lines for the adolescents with low and high levels of interpersonal EI with resource boy/girlfriend as predictor of suicide behaviour

As can be seen from Figure 8, there is a decline in the regression line (slope = helling = -1.392) among the adolescents with high levels of interpersonal EI, with a negative correlation (r = -0.170; p = 0.103) between boy/girlfriend as resource and suicide behaviour. However, among the adolescents with low levels of interpersonal EI there is an increase in the regression line (slope = 1.395) with a positive correlation (r = 0.226; p = 0.013) between the two variables. These results suggest that there is a negative correlation between the predictor and the criterion for the group of adolescents with high levels of interpersonal EI. This demonstrates that with an increase of boy/girlfriend as resource, this group (high level of interpersonal EI) displays a decrease in suicide behaviour. Furthermore, for the adolescents with low levels of interpersonal EI, the correlation is positive, suggesting that there will still be an increase in suicide behaviour, irrespective if boy/girlfriend as resource increases.

The protective influence of a healthy and supportive romantic relationship against the risk of suicide behaviour has been well established (Buitron et al., 2016; Campbell, 2012, King & Merchant, 2008). Having proficient interpersonal skills is central in establishing and maintaining a romantic relationship and is influenced by both the quality of the parent and peer relationships (La Greca & Harrison, 2005). More specifically, within a romantic relationship, good interpersonal skills, such as effectively managing the emotions and thoughts of others, exhibiting good listening skills, and the displaying empathy, creates a stronger sense of intimacy and commitment (Furman et al., 2009). In a study by Cramer (2004), it was found that when both individuals in a romantic relationship have good interpersonal skills, they reported more satisfaction with the relationship. In contrast, in romantic relationships where one or both displayed impaired interpersonal abilities, there was generally much lower satisfaction reported. It seems therefore that within a supportive romantic relationship the adolescent will be more likely to seek out support and discuss problems with his/her partner thus reducing the risk of feeling isolated and hopeless often associated with suicide behaviour (Cairocchi et al., 2002; Tancred, 2010). In contrast, having poor interpersonal skills can compromise other relationships with parents and peers, as well as lead to more misunderstandings, conflict, and feelings of inadequacy within the romantic relationship (Ciarocchi et al., 2002; Gevers et al., 2012). Moreover, the reduced ability to infer thoughts and emotions of one's partner may contribute to the vulnerability towards suicide behaviour when an adolescent finds it difficult to share and discuss problems with his/her partner due to factors such as anxiety, depression, low self-esteem, and rejection sensitivity (i.e. break-up of relationship) resulting in isolation and guilt being a burden to the other person (Buitron et al., 2016; Downey, Irwin, Ramsay, & Ayduck, 2004; Harper, Dickson, & Welsh, 2006).

Conclusion

The primary objective of this study was to investigate whether EI had a mediating or moderating effect on the relationship between psychosocial factors (interpersonal stressors and resources) and suicide behaviour. All the measuring scales, except the intrapersonal subscale in the EI scale (Bar-On EQI), provided sufficient reliability for the social sciences.

The incidence of suicide behaviour among South African adolescents in

different provinces varies from 19% to 39% (George, 2009; Meehan et al., 2007; Tancred, 2010). In this study a total of 34.6% adolescents (N = 229) reported high levels of suicidal ideation and fell into the high risk group of suicide behaviour, which confirms the concern about suicide behaviour as a significant public health care challenge in South Africa (Reddy et al., 2013; Schlebusch, 2005; Shilubane et al., 2013). The total group of adolescents in the present study also achieved higher total EI scores in comparison with normative samples (Bar-On & Parker, 2000; Koen, 2008).

The findings of this study draw attention on the significance of interpersonal and adaptability EI in decreasing suicide behaviour among adolescents when parents and romantic partners (boyfriend/girlfriend) are experienced as resources.

Firstly, this study highlighted that support derived from parents and romantic partners continue to be necessary factors in the well-being of the adolescent. More specifically, the results confirm the views found in the literature that adolescents with effective emotional flexibility, adaptability, problem-solving, and interpersonal skills generally experience relationships with others as more supportive, hence reducing vulnerability towards suicide (Connor & Reuter, 2006; Lekaviciene & Antiniene, 2016; Morris et al., 2007). This also demonstrates the importance of improving interpersonal and problem solving skills in parent-adolescent and romantic relationships to equip both adolescents and parents to maintain positive mutual supportive relationships in times of stress (Connor & Reuter, 2006).

Another important contribution of this study pertains to the gender and racial differences in the moderating effect of EI in the relationship between interpersonal stressors and suicide behaviour. There is a strong association between adaptability and stress management EI, and suicide behaviour in relationship stressors with parents and school among the male adolescents. This study showed that male adolescents who experience stress from parents and the school are specifically vulnerable towards suicide behaviour. This seems to be due to the inability to confirm and adapt feelings, generate solutions regarding emotional experiences, and effectively coping with and managing emotional responses to the stress (Jollant et al., 2007; Reinecke & Didie, 2005). Various studies have emphasised gender and socialised differences in the explanation of why male adolescents can be more at risk for suicide behaviour when experiencing parental and school stress (Möller-Leimkühler, 2003; Peltzer & Pengpid,

2012; Skinner & Zimmer-Gembeck, 2007). In the light of research indicating that male adolescents commit suicide more often than females, these variables must be considered in suicide prevention and intervention strategies for this gender group (Schlebusch, 2005).

An unexpected, albeit interesting, result of this study was the finding that White and Coloured adolescents with high adaptability EI and high interpersonal EI respectively, reported higher increases in suicide behaviour when friends as stressors increased. For both racial groups it seems that due to more westernised influences and changing family structures, there might be an overreliance on friends for emotional support (Tancred, 2010; Wesso, 2009). Unfortunately, although peer support can be a major protective factor against suicide behaviour, it can also cause stress and vulnerability towards suicide when friends lack the emotional capacity to provide positive social support in times of distress (Kaminski et al., 2010). Furthermore, these findings also concur with other literature that showed that high stress levels experienced from friends can compromise an adolescent's emotional and social resources to cope even more than other interpersonal stress, especially when there is conflict, rejection, isolation, and/or alienation involved (Buitron et al., 2016; Daniel & Goldston, 2012; Hall et al., 2009; La Greca et al., 2008).

Limitations and recommendations

In the interpretation of the results of this study the following limitations should be considered:

1. The current study was conducted in one region of South Africa; therefore, findings of the current study can only be generalised to adolescents with a similar background.
2. The use of westernised measuring instruments could have influenced the adolescents' understanding of questions and responses. In this regard, Maree (2008) emphasises the great need in South Africa for westernised measures to have increased reliability, validity and culture relevance. The Intrapersonal Scale of the Bar-On EQI did not provide an acceptable internal consistency, and the same was also found in other studies (Coetzee, 2009; Du Plessis & Van Zyl,

2014). This leaves the question whether certain adjustments should be made to the scale to be more reliable within the South African context.

3. This study only considered gender and race in exploring the moderating role of EI among the different variables. A further gender by race analysis could also yield interesting results.
4. A correlational methodology was used in this study. Longitudinal studies would be beneficial in order to further explore the role of EI in the relationship between interpersonal stressors and resources on suicide behaviour for the different gender and racial groups among the South African adolescents. The role that coping plays with regard to the adolescents' EI, interpersonal relationships, and suicide behaviour could also provide very interesting results.
5. This study determined the level of suicide behaviour among a general sample of adolescents by measuring the level of suicidal ideation, and did not distinguish between those that were directly involved in suicide attempts. This may have limited the study of valuable information with regard to the dynamics involved in suicide behaviour. Therefore, future research would benefit from using a sample of adolescents who have attempted suicide to gain a better understanding of the variables incorporated in this study.
6. Qualitative studies could also provide a more in-depth understanding of the dynamics playing a role in the experience of adolescents in how they view EI and interpersonal relationships and how it influences suicide risk behaviour.

Despite the limitations, the present study suggests that in general, good EI and positive and supportive interpersonal relationships play an important role in decreasing vulnerability towards suicide behaviour among South African adolescents. Furthermore, cognisance must be taken of the gender and racial differences that exist regarding EI, the presence of experienced interpersonal stressors and resources, and its influence on suicide behaviour. The findings of this study recommend EI skills training in mental health settings and educational curricula to promote well-being and prevent suicide behaviour among adolescents. The implementation of programmes aimed at enhancing social support and skills for parents, families, the school, and adolescents are also recommended. Additional research is recommended to explore the dynamics of other personal variables and the nature of interpersonal relationships among the different gender and racial groups within the South African context. This could expand

on the knowledge of the risk and protective factors involved in adolescent suicide behaviour.

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