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Suicide ideation and the five factor model of personality in young adults.

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CHAPTER 1: INTRODUCTION

There is a great need for more knowledge [pertaining to suicidal behaviour] in order to support initiatives in suicide prevention. Even though there is much to be learnt from research and prevention experiences from abroad, every country needs to make its own analyses of the problem... knowledge can only be accumulated through hard work and dedicated efforts in suicide research over many years. (Schlebusch, 2005b, p. xiii)

1.1 OVERVIEW AND RATIONALE

Suicidal behaviour is a major public health problem and presents significant challenges to individuals, families and public health systems throughout the world (Bertolote & Fleischmenn, 2002; Brezo, Paris, & Turecki, 2006b; Moosa, Jeenah, Pillay, Vorster, & Liebenberg, 2005; Schlebusch, 2005b; World Health Organisation, 2000a). Suicidal behaviour, ranging from suicide ideation to suicidal acts such as parasuicide, attempted suicide, and completed suicide is widely pervasive and has reached critically wide-ranging proportions in South Africa (Schlebusch, 2005b) as well as internationally (Bertolote & Fleischmenn, 2002; Fanous, Prescott, & Kendler, 2004; Fergusson, Woodward, & Horwood, 2000; Schlebusch, 2005b). Figures from the World Health Organisation show that about one million people worldwide commit suicide every year, accounting for more deaths than homicide and war combined (Schlebusch, 2005b). In the year 2000 a suicide was completed every 40 seconds and attempted every 3 seconds worldwide (Brezo et al., 2006b; Moosa et al., 2005; Schlebusch, 2000). Furthermore, according to the World Health Organisation estimates based on current worldwide trends, for the year 2020 approximately 1.53 million people will die from suicide and 10 to 20 times more people will attempt suicide, representing on average one death every 20 seconds and one attempt every 1 to 2 seconds (Bertolote & Fleischmenn, 2002; Schlebusch, 2005b). Data on suicidal behaviour in South Africa is mostly derived from ad hoc research as there is no specific South African organisation collating data in this regard (Schlebusch, 2005b; Swanepoel, 2000). In South Africa suicide increased by 48% during the years 1994 to 2004 (Latoya Newman as cited in Rebelo, 2005). Current trends

suggest that virtually 1 South African dies by suicide every hour and more than 18 unsuccessful attempts are made in the same time span (Rebelo, 2005; Schlebusch, 2005b).

Throughout the world suicidal behaviour has especially increased among young adults (Planas, Bennasar, Perez, & Arroyo, 2001) and more recently suicide has been implicated as being one of the leading causes of death among these individuals under the age of 30 years (Fanous et al., 2004). To date, research on suicidal behaviour among young adults in South Africa is still limited. Nevertheless, a South African study found that young adults aged 20 to 29 years made up 48.3% of the recorded parasuicide in a general hospital psychiatric unit in the 1980's (Bosch, Schlebusch, & Wessels, 1987). Consistent with those findings are the findings of another South African study showing that 70.5% of parasuicide patients seen at Addington Hospital in Durban, during 1994, were younger than 29 years (Bosch, McGill, & Noor-Mohammed, 1995). Accordingly, recent figures of the South African National Injury Mortality Surveillance System revealed that during the year of 2002, the highest percentage of completed suicides occurred in young adults between the ages of 20 to 29 years (Schlebusch, 2005b). This data suggests that suicidal behaviour is a serious problem among young adults internationally as well as in South Africa.

International (Fanous et al., 2004) as well as South African (Schlebusch, 2005b) studies of suicidal behaviour have mostly utilised clinical samples as compared to non-clinical samples. However, as compared to community epidemiological studies conducted in various countries, on the prevalence rates for suicide ideation (Botega, de Azevedo Barros, de Oliveira, Dalgalarrondo, & Leon, 2005) in South Africa there is a paucity of research in this regard. For example, as compared to the United States, in South Africa there are no accurate statistics on the prevalence rates for suicide ideation among university students and data in this regard in South Africa is only available from a dearth of ad hoc research. Nevertheless, the findings of two South African studies suggests that the prevalence rate of suicide ideation among South African university students 25.8% (Mayekiso & Ngcaba, 2000) and 31% (Peirson, 2001) appears to be substantially higher when compared the prevalence rate of suicide ideation among college students in the

United States 10% (Brener, Hassan, & Barrios, 1999) and 9.5% (Kisch, Leino, & Silverman, 2005). This is a cause for grave concern as suicide ideation has been implicated as being the first warning sign of the eventual engagement in more serious suicidal behaviour such as attempted and completed suicide (Ahrens, Linden, Zaske, & Berzewski, 2000; American Psychological Association, 2004; Cox, Enns, & Clara, 2004; Fanous et al., 2004; Fergusson et al., 2000; Kaplan & Sadock, 1995; Linden, Zaske, & Ahrens, 2003; Mann, 2002; Motto, 1965).

It has also been reported that in comparison to many other parts of the world, suicidal behaviour in South Africa is inordinately high (Schlebusch, 2004; Schlebusch, 2005b; Schlebusch & Bosch, 2000). Hence suicidal behaviour in South Africa requires serious attention in research. Particularly because current data most likely reflects only part of the true extent of the problem as documented, South African statistical information about suicidal behaviour is not extensive. Furthermore, available South African data indicates that suicidal behaviour among young adults is a serious problem and current South African figures indicate that the highest percentage of suicide occurs in young adults between the ages of 20 to 29 years (Schlebusch, 2005b). Therefore the importance of studies investigating suicide ideation among young adults cannot be emphasised enough. The reasons for this are that suicide ideation represents the early stages in the causal pathway to engaging in more serious suicidal behaviour (Ahrens et al., 2000; American Psychological Association, 2004; Cox et al., 2004; Fanous et al., 2004; Fergusson et al., 2000; Linden et al., 2003, Mann, 2002; Motto, 1965; Sadock & Sadock, 2003), represents a form a of personal suffering (Ahrens et al., 2000; Cox et al., 2004; Linden et al., 2003; Schlebusch, 2005b) and in certain instances reflects pathological maladaptive coping behaviour (Ahrens et al., 2000). It would be advantageous from the standpoint of suicide prevention and intervention, for studies to focus on suicide ideation because knowledge gained in this regard has the potential to be utilised to intervene before the occurrence of more serious suicidal behaviour, address personal suffering and maladaptive coping behaviour.

Determining risk factors for suicidal behaviour and developing appropriate interventions, has become a public health priority in many countries throughout the world. Empirical evidence indicates that there are a wide range of risk factors, such as personality and depression, which respectively contribute to the vulnerability for suicidality. For example hopelessness, increased neuroticism, and to a lesser extent, introversion, has been implicated as being useful in screening for risk across all of the three suicidal behaviours, namely suicide ideation, attempted suicide and completed suicide (Brezo et al., 2006b). Elevated neuroticism is a prominent predictor of suicide ideation (Brezo et al., 2006b; Duberstein et al., 2000; Enns, Cox, Inayatula, 2003; Fanous et al., 2004; Fergusson, Beautrais, & Horwood, 2003; Kerby, 2003; Statham et al., 1998; Useda, Duberstein, Conner, & Conwell, 2004). Perfectionism, self criticism, cynicism and extreme scores on trait anxiety have been found to also predict suicide ideation (Cox et al., 2004; Goldston et al., 1996). Whereas the personality features of impulsivity, hostility, and negativism, has been found to cluster in suicidal individuals (Engstrom, Alilng, Gustavsson, Oreland, & Traskmanbends, 1997; Janowsky, Morter, & Hong, 2002). These individuals also tend to be sensitive to interpersonal rejection, introverted, excessively self punitive, self critical, and perfectionistic (Janowsky et al., 2002).

On the other hand depression has been implicated as being one of the most important risk factors associated with suicidal behaviour (American Psychiatric Association, 2000; Sadock & Sadock, 2003; Schlebusch, 2005a, 2005b; Scocco, Marietta, Tonietto, Dello Buono, & De Leo, 2000; Vuorliehto, Melartin, & Isometsa, 2006). Studies of suicidality consistently demonstrate that suicidal behaviour most often occurs within the context of mood disorders, namely depressive disorder (Kuo, Gallo & Tien, 2001; Mann, 2002; Schlebusch, 2005a, 2005b; Statham et al., 1998). A literature review for the purpose of this study also found that the association between depression and suicide ideation is well established (Ahrens et al., 2000; American Psychiatric Association, 2000; Comer, 1995; Kaplin & Sadock, 1998; Kisch et al., 2005; Sadock & Sadock, 2003; Schlebusch, 2005a, 2005b; Scocco et al., 2000; Thompson, Mazza, Herting, Randell, & Eggert, 2005; Vuorliehto et al., 2006; Weber, Metha, & Nelson, 1997; Zhang & Jin, 1996).

It view of the above it is noteworthy to stress that suicidal behaviour also includes aspects of neuropsychological, biological, social, cultural, interpersonal, existential, philosophical and other variables (Brezo et al., 2006b; Fergusson et al., 2000; Schlebusch, 2005b; Statham et al., 1998). Notwithstanding this, during the past three decades there has been increased interest in the role of personality traits in understanding suicidal behaviour (Brezo et al., 2006b; Statham et al., 1998). At this point it is important to note that there is a paucity of research investigating the nature of the relationship between personality and suicidal behaviour in the South African context and given that most of research in this area has been undertaken in the Western world, findings in this regard are limited in its cross-cultural generalizability. Hence the present study undertakes to address the gap in this area of research.

Studies investigating the nature of the relationship between personality traits and suicidal behaviour have mostly focused on the traits of Neuroticism and Extraversion. A dearth of these studies utilised the comprehensive personality taxonomy, namely the Five Factor Model of Personality. Studies that have utilised the Five Factor Model in the investigation of the relationship between personality and suicidal behaviour have not considered whether personality traits provide protection against suicidal behaviour. Another limitation in this area of research pertains to the paucity of studies controlling for the influence of depression on the relationship between personality and suicidal behaviour despite that extensive empirical evidence shows that depression is significantly related to suicidal behaviour as well as personality. A review of 219 studies that utilised standardised personality measures to investigate the role of personality traits in suicidal behaviour, found that the small number of studies that had controlled for covariates, such as psychiatric disorders and distal and proximal environmental stressors, concluded that the contribution of personality traits remained significant (Brezo et al., 2006b). However there are studies that have found that personality traits were no longer associated with suicidal behaviour after controlling for the influence of depression on the relationship (Brezo et al., 2006a; Cheng, Mann, & Chan, 1997; Cox et al., 2004; Dumais et al., 2005; Statham et al., 1998; Useda et al. 2004). Hence studies controlling for the influence of

depression on the relationship between personality and suicidal behaviour warrants further investigation.

Finally, given the magnitude of the problem of attempted and completed suicide, it is imperative that studies of suicide consider what variables are related to and contribute to the risk of suicide. Literature on suicidal behaviour suggests that suicide ideation precedes attempted and completed suicide, and represents a form of personal distress and maladaptive coping. Therefore, this study directed attention to suicide ideation in young adults, the age group among whom suicidal behaviour is a serious problem. The prevalence rate of suicide ideation was determined given that the prevalence rate of suicide ideation in South Africa is not well documented. Furthermore this research addresses some of the limitations with regard to research on the relationship between personality traits and suicidal behaviour, namely, the gap in utilising a comprehensive personality taxonomy such as the Five Factor Model of personality, considering whether personality traits provide protection against suicidal behaviour, and controlling for the influence of depression on the relationship between personality and suicidal behaviour. The present study sought to determine which of the five domains of the Five Factor Model of Personality were significantly related to suicide ideation among young adults. This investigation included determining whether personality was a protective factor against suicide ideation. The impact of depression on the relationship between personality and suicide ideation was considered as a potential confounder and controlled for in the assessment of this relationship.

In conclusion, the central aim of the present study was to investigate whether a relationship exists between personality and suicide ideation, and then factor out the impact of depression on this relationship. This study also assessed the prevalence rate of suicide ideation among young adults.

CHAPTER 2: LITERATURE REVIEW

2.1 SUICIDAL BEHAVIOUR

Suicidal behaviour has been conceptualised differently in the literature. Conceptual as well as empirical evidence suggests that suicidal behaviour occurs along a continuum starting with suicide ideation and extending to suicidal acts (Ahrens et al., 2000; Barrios, Everett, Simon, & Brener, 2000; Botega et al., 2005; Jamison, 2001; Maris, 1992; O'Connor & Sheehy, 2000; Schlebusch, 2005b; Shneidman, 1981; Vuorliehto et al., 2006). Consonant with this, Jamison (2001) describes suicide as being the anchor point on the continuum between suicidal thoughts and behaviours (Jamison, 2001). Hence, suicidal behaviour in the present study is conceptualised as ranging from suicide ideation to suicidal acts which includes parasuicide (Schlebusch, 2005b), attempted suicide and completed suicide (Ahrens et al., 2000; Brezo et al., 2006b; Schlebusch, 2005b). However at this point it is noteworthy to mention that Scocco et al. (2000) explain that even though suicide ideation logically precedes suicide, presenting with suicide ideation does not necessarily lead to attempted or completed suicide.

2.1.1 Suicide Ideation

Suicide ideation constitutes one aspect of suicidal behaviour and refers to the fleeting thoughts that life is not worth living, to current plans, wishes and thoughts to commit suicide (Ahrens et al., 2000; Linden et al., 2003; Pienaar, Rothman, & van der Vijver, 2007; Ranieri et al., 1987; Sadock & Sadock, 2003; Scocco et al., 2000). Extensive literature and empirical evidence indicates that suicide ideation precedes and is the best predictor of eventually engaging in more serious suicidal behaviour, however it is also noted that presenting with suicide ideation does not necessarily imply actually acting it out (Ahrens et al., 2000; American Psychological Association, 2004; Barrios et al., 2000; Brener et al., 1999; Botega et al., 2005; Cox et al., 2004; Kaplan & Sadock, 1995; Linden et al., 2003, Mann, 2002; Maris, 1992; O'Connor & Sheehy, 2000; Ranieri et al., 1987; Schlebusch, 2005b; Scocco et al., 2000; Shneidman, 1981; Vuorliehto et al., 2006). In

addition, it is not unusual for an individual to experience suicide ideation in their lifetime and not act it out (Kaplan et al., 2000; Sadock & Sadock, 2003; World Health Organisation, 2000b). However suicidal thought becomes a serious risk for attempting suicide and completing suicide when acting on those thoughts seem to be the only way out of difficulty (World Health Organisation, 2000b).

Literature reviewed in the following sections suggests that a number of factors such as emotional instability as characterised by high scores on Neuroticism, and low Extraversion, low Conscientious, depression, lower levels of social support and ineffective coping styles are possible risk factors for eventually engaging in suicidal acts. Whereas emotional stability as characterised by lower Neuroticism, and high Extraversion, high Conscientious, social support and effective coping styles may mediate in engaging in suicidal behaviours. Hence even though suicide ideation may be an antecedent for engaging in more serious suicidal behaviour, protective factors may intervene in this regard. Therefore some people might have ideas and thoughts about suicide but not act on these ideas.

Nevertheless as mentioned earlier, suicide ideation represents a form of personal suffering (Ahrens et al., 2000; Cox et al., 2004; Linden et al., 2003; Schlebusch, 2005b) and in certain instances reflects pathological maladaptive coping behaviour (Ahrens et al., 2000). In addition, Fanous et al. (2004) states "it would be advantageous from the standpoint of suicide prevention to intervene at early stages in the causal pathway to the occurrence of suicidal acts, as both planned and unplanned attempts may rapidly follow suicide ideation" (p. 301 - 302). However despite the fact that suicide ideation has been implicated as preceding the engagement in more serious suicidal behaviour, the discontinuity between presenting with suicide ideation and eventually engaging in more serious suicidal behaviour was shown in a recent epidemiological study conducted by Botega et al. (2005). That study investigated the life prevalence rates of suicide ideation, suicidal plans and suicide attempts in the city of Campinas, Brazil. Findings showed that during the course of a lifetime, suicidal thoughts were six times more frequent than suicide attempts (Botega et al., 2005). Nevertheless there is also empirical evidence

indicating a strong positive association between suicide ideation and suicidal acts. For example, the findings of a prospective cohort study of 3,481 subjects, conducted for a period of 13 years in Baltimore, found that the individuals who presented with suicide ideation at the beginning of the study were at a six-times greater risk for attempting suicide in the following 13 years (Kuo et al., 2001). In addition, the findings of a National College Health Assessment survey of 15, 977 college students in the USA revealed that almost all of the suicide attempters reported having seriously considered suicide prior to their attempts (Kisch et al., 2005). Other studies have demonstrated a correlation between suicide ideation and completed suicide. For example literature and suicide research has shown that suicide ideation is a risk factor (Cox et al., 2004; Mann, 2002; Planas et al., 2001; Vuorliehto et al., 2006) and the best predictor of eventual completed suicide (Ahrens et al., 2000; American Psychological Association, 2004; Cox et al., 2004; Kaplan & Sadock, 1995; Linden et al., 2003, Mann, 2002; Motto, 1965). Other studies have revealed that between 2.6% and 5.5% of suicide ideators eventually commit suicide (Scocco et al., 2000). Suicide research in South African also indicates an association between suicide ideation and suicidal acts as more than two-thirds of individuals who engage in suicidal acts communicate thoughts of killing themselves within three months preceding the act (Schlebusch, 2005b).

2.1.2 Parasuicide, Attempted Suicide and Completed Suicide

In setting out a clearer perspective of the continuum of suicidal behaviours, suicidal acts are divided into non-fatal and fatal suicidal behaviours. Non-fatal suicidal behaviour refers to self-inflicted suicidal behaviour which did not succeed in ending one's own life, such as parasuicide and attempted suicide. The intent to die or not differentiates parasuicide from attempted suicide although both have non-fatal outcomes (Schlebusch, 2005b). Parasuicide refers to non-fatal suicidal behaviour without the intention to die and is generally a "cry for help", where a person uses suicidal behaviour as an inappropriate problem-solving skill acted out in the form of self-harm. In contrast, attempted suicide refers to an instance when a person with the intent to die, tries but fails to end her or his life. Both suicide ideation and a suicide attempt have been implicated as important

clinical precursors of eventual completed suicide. This is supported by empirical evidence indicating that suicide ideation as well as a previous suicide attempt indicate a risk for completed suicide (Cox et al., 2004; Mann, 2002; Planas et al., 2001; Vuorliehto et al., 2006) and are predictors of completed suicide (Mann, 2002). Fatal suicide behaviour refers to self-committed, completed suicide, where a person actually achieves their predetermined goal of bringing about her or his own death (Schlebusch, 2005b).

2.2 PREVALENCE OF SUICIDAL BEHAVIOUR: INERNATIONALLY AND IN SOUTH AFRICA

Suicide is one of the leading causes of death in the world (Ahrens et al., 2000). According to recent figures of the South African National Injury Mortality Surveillance System, during the year of 2002, the highest percentage of completed suicide occurred in young adults between the ages of 20 to 29 years (Schlebusch, 2005b). This is of particular relevance as it is an indication of the vulnerability of young adults to suicide within the South African context. This report is consonant with reports that suicide rates peak between the ages of 15 to 35 years (World Health Organisation, 2000a) and that suicidal behaviour has especially increased among young adults worldwide (Planas et al., 2001).

It is noteworthy to point out that in South Africa there is no specific organisation collating statistics on suicide in South Africa and hence accurate statistics in this regard is not available as information concerning suicide is mostly derived from ad hoc research (Schlebusch, 2000; Schlebusch, 2005b; Swanepoel, 2000). A case in point is a multicentre research programme, The Durban Parasuicide Study (DPS), that studies suicidal behaviour in South Africa, which reports that their studies reflect suicide rates up to 19 per 100 000 of the South African population (Schlebusch, 2000). This is similar to a World Health Organisation study which reported that the overall South African suicide rate was 17.2 per 100 000 (World Health Organisation, 1999 as cited in Schlebusch, 2005b). It has been argued that the actual suicide figures in South Africa are higher given that there is no specific organisation collating statistics on suicide. In addition,

suicide is underreported and is often recorded as accidental death (Schlebusch, 2000; Schlebusch, 2005b). Nevertheless, as outlined above, the respective South African suicide rates of 19 per 100 000 (Schlebusch, 2000) and 17.2 per 100 000 are slightly higher than the World Health Organisation's estimated global average of 16 per 100 000 and also higher than many other African countries (World Health Organisation, 1999 as cited in Schlebusch, 2005b). The suicide rates of the other African countries were not expounded on. Whereas a comparison of injury and disability adjusted life years with estimates from a global burden disease study revealed that South Africa appears to have higher suicide prevalence rates than reported overall averages of the sub-Saharan African region and world averages. Statistical comparison of the age-standardised death rates for suicide and self-inflicted death revealed during the year of 2000, suicide and self-inflicted death in South African was 15.3 per 100 000, while the sub-Saharan African regions overall average rate was 6.5 per 100 000 and the world average was 14.5 per 100 000 (Matzopolous, Norman, & Bradshaw, 2004 as cited in Schlebusch, 2005b). A possible interpretation of these statistical differences was not discussed.

Specific global trends reveal that the average suicide rate is less than 10/100 000 in Spain, Italy, Ireland, Egypt, and the Netherlands, in the United States it is 12.5 per 100 000 and suicide rates range from more than 25/100 000 in Scandinavia, Switzerland, Germany, Austria, the Eastern European countries (Sadock & Sadock, 2003). Suicide patterns in South Africa are comparable to countries that have published epidemiological suicide data, particularly when taking into consideration that the actual suicidal behaviour trends within South Africa is not well documented for the various reasons mentioned above. For over a decade suicide research and literature within the South African context suggests suicidal behaviour in South Africa is reaching epidemic proportions (Schlebusch, 2005b). Between 6 893 to 8 000 South Africans die of suicide annually, with 667 dieing by suicide every month, 154 per week, 22 every day and virtually 1 South African dieing by suicide every hour (Schlebusch, 2005b). It appears that more young adults die of suicide annually than other age group in South Africa. Given that the highest percentage of completed suicide occurs in young adults between the ages of 20 to 29 years (Schlebusch, 2005b).

Compared to completed suicide, about 10 to 20 times more people attempt suicide world wide and in some regions suicide attempts can be up to 40 times more frequent (Schlebusch, 2000; Schlebusch, 2005b). In South Africa accurate statistics are not available for attempted and parasuicide. However it has been reported that current estimated attempted suicide/paracuicide: completed suicide ratio in South Africa is 20:1 or higher (Schlebusch, 2005b). This figure is comparable to the global reported ratios. It is also estimated that 160 000 or more South Africans engage in non-fatal suicidal behaviour annually (Schlebusch, 2004). This represents 13 333 non-fatal suicide attempts occur every month, 3 077 per week, 438 every day and 18 or more every hour in South Africa (Schlebusch, 2005b). This situation is alarming given that suicide attempts are implicated as being a significant precursor and best predictor of future completed suicide.

Between 10% and 12% of all patients referred to general hospitals are as a result of non-fatal suicide attempts (South African Injury Mortality Surveillance, 2005, as cited in Sookha, 2005). The findings of a South African study revealed that 70.5% of 19 711 parasuicide patients seen at Addington Hospital in Durban, during 1994, were younger than 29 years (Bosch et al., 1995). Another South African study investigating trends in adult parasuicide found that young adults aged 20 to 29 years made up 48.3% of the recorded parasuicide in a general hospital psychiatric unit (Bosch et al., 1987). Generalizing from a psychiatric sample to the general population is limited as suicide attempts are more prevalent in the presence of psychopathology (Scocco et al., 2000). However it has been previously postulated that young adults are considered to be at a greater risk for attempted suicide in South Africa (Pillay & Pillay, 1987). This postulation and the findings of the studies outlined provide another indicator that young adults in South Africa are at the greatest risk for engaging in non-fatal suicidal behaviours.

Botega et al. (2005) report that community epidemiological studies conducted in Canada, France, Germany, Lebanon, New Zealand, Puerto Rico, Taiwan, South Korea and the USA, respectively, revealed lifetime prevalence rates for suicide ideation ranging from

2.1% in Beirut, Lebanon to 18.5% in Christchurch, New Zealand. Compared to other countries, in South Africa there is a paucity of community epidemiological research on the prevalence rates for suicide ideation.

Furthermore, compared to other countries such as the USA, in South Africa there are no accurate statistics on the prevalence rates for suicide ideation among university students and data in this regard in South Africa is only available from a limited number of studies. A study investigating suicide ideation among college students in the United States analyzed data from a National College Health Risk Behaviour survey conducted in 1995. That survey found that during the 12 months preceding the survey (1995), 10% of a 4,609 sample of undergraduate college students had thought about killing themselves, of that sample 56% were female and 44% were male aged 18 years and older (Brener et al., 1999). While that study indicated that 63% of the samples were 18 to 24 years old, there was no indication of the age range of 37% of that sample who were older than 24 years. Despite this, the findings of the study conducted by Brener et al. (1999) are consonant with the findings of a National College Health Assessment survey (Kisch et al., 2005) that measured suicide ideation among college students in the USA during the academic year of 1999 to 2000. The survey found that 9.5% of a 15,977 sample of students presented with suicide ideation. Of that sample 61.8% were female and 38.2% were male, sixty-two percent of the sample were under 22 years of age and freshman and sophomores made up 41.3%, juniors and seniors 40.4, fifth year students 6.9% and graduate students composed 10.4% of the sample (Kisch et al., 2005). Even though it was reported that most of the samples were under the age of 22 years, there was no indication of the age range of that sample.

A South African study assessing the history of suicidal thought in a sample of 89 (39 males and 50 females) first year medical students at the University of Transkei found that 25.8% of that sample reported having considered committing suicide and 51% reported a history of feeling life was not worth living (Mayekiso & Ngcaba, 2000). Mayekiso and Ngcaba (2000) did not provide further information on the questionnaire that was utilized to obtain data pertaining to suicidal thought, nor on the samples demographic information

and the year that the study was conducted. Another South African study found that 31% of a sample comprising 113 (28 males and 85 females) undergraduate health-science psychology students at the University of Witwatersrand, aged 17 to 21 years, reported suicide ideation as measured by the Positive and Negative Suicide Ideation Inventory (Peirson, 2001). The year that study was completed was not reported. Despite this, the findings on the prevalence rate of suicide ideation among the respective samples of South African university students is a cause for grave concern as suicide ideation has been implicated as being the best predictor of engaging in more serious suicidal behaviour (Ahrens et al., 2000; American Psychological Association, 2004; Cox et al., 2004; Kaplan & Sadock, 1995; Linden et al., 2003, Mann, 2002; Motto, 1965).

In conclusion, the literature reviewed indicates that in comparison to many other parts of the world, suicidal behaviour in South Africa is inordinately high. Particularly when considering that the reported data on suicidal behaviour in South Africa most likely reflects only a part of the true extent of the problem. This situation may be as a result of poor statistical collection. Whilst the data on suicidal behaviour outlined above provides insight on the prevalence of suicidal behaviour, there is a paucity of literature that discusses possible interpretations of the discrepant prevalence rates of suicidal behaviour between countries. Nevertheless the magnitude of the problem of suicidal behaviour throughout the world has resulted in increased investigations of the variables that contribute to the risk of suicide. During the past three decades accumulating empirical evidence indicates that certain personality traits may increase individual vulnerability to suicidality. Personality and related research is discussed in more detail below.

2.3 PERSONALITY

Personality as defined by Pervin and John (1997) is the characteristics of a person that accounts for their enduring emotional, cognitive, and behavioural patterns. These respective patterns have been referred to as individual differences. The study of personality is divided between theoretical approaches which address the cause of personality and resultant individual differences and the trait/dispositional approach that provides a language and framework to describe personality and resultant individual differences (Murphy & Davidshofer, 2005; The Personality Project: Theories, 2004). Different theoretical orientations such the biological, intrapsychic, learning perspectives, and social and cultural, respectively, address the determinants or cause of personality and resultant individual differences. On the other hand personality traits, which have been largely derived from the attributes or words that people use to classify themselves or others, describe the dimensional characteristics or disposition of an individual (Howland & Thase, 2005; McCrae & Costa, 1999). Hence personality traits provide a dispositional description of a person (McAdam, 1996) or language and framework to describe personality (Digman, 1990; Murphy & Davidshofer, 2005). Personality traits represent emotional, behavioural, interpersonal, attitudinal, motivational, and experiential and cognitive styles, which characterise how individuals relate and cope with their world and individual differences in this regard (Howland & Thase, 2005; McCrae, 1991; McCrae & Costa, 1999; McCrae, Costa, & Piedmont, 1993; Ryckman, 2000).

2.3.1 Theories of Personality and Personality Traits

The various theories about personality have been cleaved into distinct domains of knowledge on personality. These domains include the biological, intrapsychic, learning perspectives, social and cultural, and trait/dispositional, respectively (Larsen & Buss, 2005; McMartin, 1995; Nevid, Rathus, & Greene, 2000; Ryckman, 2000; The Personality Project: Theories, 2004). However, it is proposed that human personality must be considered from different theoretical perspectives in order to, understand the complexities of human behaviour (Sadock & Sadock, 2003) and grasp the whole person

(Larsen & Buss, 2005). Hence at the onset it is noteworthy to emphasise that all of these domains of knowledge on personality provide different theoretical constructs and insights that enhance the understanding of human personality. Nevertheless these different domains of knowledge on personality illustrate the diversity of theoretical orientations that characterise the study of personality. These various domains are discussed in more detail below.

The biological domain of knowledge in personality conceptualises collections of biological systems as providing the building blocks for personality and this domain includes the behavioural genetic and evolutionary approaches. Behavioural genetic theorists conceptualise the development of personality as being influenced by the complex interplay between genetics and experiential influences. Research is therefore focused on the extent to which heredity and the environment interact in forming personality. In contrast, the evolutionary approach focuses on the psychological mechanisms that constitute human personality. Variability is conceptualised as being related to alternative adaptive strategies that evolved as a result of being effective in solving adaptive problems (Larsen & Buss, 2005; McMartin, 1995; The Personality Project: Theories, 2004).

Psychoanalytic theory and the resultant psychodynamic theories are the predominant theories that comprise the intrapsychic domain of knowledge on personality. This approach deals with personality in relation to psychological mechanisms, many of which operate outside the realm of conscious awareness. Personality is viewed as being influenced and shaped by unconscious processes, instincts, defenses and internal conflicts. This perspective has contributed to fundamental insights in this regard. However the theoretical constructs that comprise this domain are often outside the realm of direct empirical testing and have been criticised for the lack of empirical support. Nevertheless the behavioural manifestations of a number of psychological mechanisms have been studied empirically (Larsen & Buss, 2005; McMartin, 1995; The Personality Project: Theories, 2004).

In contrast to the intrapsychic approach which emphasises instincts, defenses and internal conflicts as the basis of personality, the learning perspectives, as characterised by behavioural and cognitive-social theories, emphasise learning, information processing, observable behaviour and environmental factors as being the basis of personality. According to the behaviourist perspective, personality is an accumulation of learned behaviour and emotional reaction responses and refers to what can be manipulated and objectively observed. Critics of this perspective contend that human experience cannot be reduced to observable responses and this perspective does not capture the richness of human behaviour. Cognitive-social theories developed from and broadened the scope of traditional behaviourism and cognitive perspectives. The cognitive-social perspective also focuses on cognition, beliefs, expectations, and how experiences are interpreted and views personality as reflecting interplay between environmental factors and the manner in which a person processes information about themselves and the world. This perspective has been criticised with regard to placing too little emphasis on the genetic contributions to behaviour (McMartin, 1995; Nevid et al., 2000).

Within the social and cultural domain of knowledge on personality, it is assumed that "personality is not something that merely resides within the heads, nervous systems, and genes of individuals, rather, personality affects and is affected by the social and cultural context" (Larsen & Buss, 2005, p. 17). This domain emphasises personality as it is influenced by and expressed through socialisation, social roles and expectations, and social institutions. Research within this domain includes the investigation of social-cultural influences on human behaviour and mental experience (Larsen & Buss, 2005; Nevid et al., 2000).

In comparison to the domains referred to above, which emphasise the cause of personality and resultant individual differences, the trait/dispositional approach to personality does not emphasise causality (Digman, 1990; Larsen & Buss, 2005). Instead the central goal of personality psychologists working within the trait/dispositional domain is to identify and measure trait descriptors that comprehensively encompass the diversity of human personality. Hence the study of personality is characterised by developing

descriptive personality trait taxonomies of individual differences. Furthermore, this approach more than any other approach to personality, emphasises quantitative techniques for measuring and studying personality. This domain of knowledge on personality and as mentioned earlier provides a language of personality and framework to describe personality and individual differences. Therefore it has been advocated that this approach to personality cuts across all the other domains of knowledge on personality (Digman, 1990; Larsen & Buss, 2005; Murphy & Davidshofer, 2005; The Personality Project: Theories, 2004).

The trait/dispositional approach to personality has been criticized for being inadequate in relation to understanding underlying psychological processes (Block, 1995; McAdams, 1992). Explaining personality differences or, as Digman (1990) posits, the 'why' of personality, is another dimension of the approach to personality and suggests this is where the idiosyncratic study of the individual can be positioned. For example approaches that address the determinants or causes of personality and resultant individual differences.

2.4 THE FIVE FACTOR MODEL OF PERSONALITY: A VERSION OF TRAIT THEORY

During the past fifty years there has been debate about what traits comprehensively summarise the domain of personality. Debates such as this are the essence of scientific enquiry (Larsen & Buss, 2005). Nonetheless during this period the Five Factor Model of Personality, often referred to as the 'Big Five', has received widespread attention (Heuchert, Parker, Stumf, & Myburgh, 2000), the most support empirically and support from theoretical literature (Larsen & Buss, 2005; Murphy & Davidshofer, 2005). This taxonomy of personality has five fundamental traits, namely Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness. There is now increasing agreement among personality psychologists that the domain of personality can be characterised by these five factors or global domains (Costa, McCrae, & Dye, 1991; Digman, 1990; John, 1990; Larsen & Buss, 2005; McCrae & Costa, 1987; Murphy &

Davidshofer, 2005). Furthermore these five factors are also "entirely compatible with more differentiated, multidimensional views, and is fully capable of capturing the rich complexity of human personality" (Watson, 2000, p.176). The significance of such a model is that it facilitates for the domain of personality to be represented broadly (Briggs, 1992) as it is not based on any single particular theory of personality (Watson, 2000).

Decades of factor-analytic research on existing personality instruments have revealed similar structures to that of the Big Five (Digman, 1990; Duberstein et al., 2000; McCrae & Costa, 1989; McCrae et al., 1993; Murphy & Davidshofer, 2005; Trull, Useda, Costa & McCrae, 1995). The Five Factor Model of Personality represents a hierarchical organisation of personality traits which characterise individual differences with regard to emotional, interpersonal, attitudinal, and motivational styles, cognitive processes, social function, affective states and stress responses systems (Howland & Thase, 2005; McCrae, 1991; McCrae & Costa, 1999; McCrae et al., 1993; Ryckman, 2000). As outlined in more detail below, the five traits, namely Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness subsume groups of intercorrelated traits which are referred to as facets. In other words, the five global domains are represented by six facets which comprise the respective domains (Costa & McCrae, 1992; Larsen & Buss, 2005).

Neuroticism as conceptualised within the Five Factor Model, describes an individual's tendency to experience negative affect and psychological distress and is contrasted with Emotional Stability/psychological adjustment (Costa & McCrae, 1992; Digman, 1990; Larsen & Buss, 2005; Ryder, Bagby, Marshall, & Costa, 2005; Watson & Hubbard, 1996). This domain is also referred to as Neuroticism versus Emotional Stability (Digman, 1990; Larsen & Buss, 2005; Watson & Hubbard, 1996). Specifically, Neuroticism conceptualises the tendency to experience negative affect or negative mood states such as fear, sadness, anger, guilt, embarrassment and disgust. These negative affects are viewed as interfering with adaptation and are the core aspects of the Neuroticism domain (Costa & McCrae, 1992). Neuroticism is also very broadly related to psychopathology, including depression, anxiety disorders and borderline hostility

(Costa & McCrae, 1992; Larsen & Buss, 2005; Watson & Hubbard, 1996). The trait Neuroticism consists of a cluster of specific traits or facets, namely, Anxiety, Angry Hostility, Depression, Self-Consciousness, Impulsiveness, and Vulnerability. Neuroticism as represented by these intercorrelated traits or facets can be measured on six facet scales on the Revised NEO Personality Inventory (NEO-PI-R). Elevated Neuroticism scale scores characterise individuals who frequently experience negative affect, are prone to having irrational thought processes, less able to control their impulses, and cope less effectively with stress. In contrast, individuals scoring low on Neuroticism are emotionally stable and tend to be calm, secure, relaxed, even-tempered, and deal with stressful experiences more effectively (Costa & McCrae, 1992; Ryder et al., 2005).

The trait Extraversion describes the degree of an individual's sociability, talkativeness, assertiveness, activeness, interest in other people and external events, need for stimulation, and tendency to experience positive affect or mood, such as joy, interest, enthusiasm, love, and optimism (Cavanaugh, 1990; Costa & McCrae, 1992; Larsen & Buss, 2005; Ryder et al., 2005). The facets of Extraversion have been grouped into three interpersonal traits, namely, Warmth, Gregariousness, and Assertiveness, and three temperamental traits, namely, Activity, Excitement Seeking, and Positive Emotions (Cavanaugh, 1990; Costa & McCrae, 1992). These facets are measured by six facet scales on the NEO-PI-R (Costa & McCrae, 1992). Extraverts are sociable, friendly, enjoy being around people, and are affectionate, tend to be talkative, assertive, and active, seek stimulation, excitement and the company of others, and generally experience positive affect. Introverts, who are not the opposite of extroverts, are reserved, tend to be quiet, and prefer and are comfortable with being alone. These individuals are not necessarily shy, unhappy or pessimistic (Costa & McCrae, 1992; Larsen & Buss, 2005; Ryder et al., 2005).

Openness to Experience as conceptualised within the Five Factor Model describes the degree of an individual's curiosity about inner experiences and external world, and the willingness consider novel ideas and unconventional values (Costa & McCrae, 1992; Larsen & Buss, 2005; Ryder et al., 2005). The facets that comprise this domain include

Fantasy, Aesthetics, Feelings, Actions, Ideas, and Values, and are measured by six facet scales on the NEO-PI-R (Costa & McCrae, 1992). These dimensions of personality have been previously conceptualised in theories and measures of personality; however, the coherence of these traits into a single global domain is conceptualised within the Five Factor Model (Costa & McCrae, 1992). An Open individual tends to be curious about their inner experiences and external world as a consequence their lives are experientially richer, they also tend to, consider unconventional ideas and values. These tendencies do not mean that these individuals are unprincipled, as they apply their evolving value systems conscientiously as a traditionalist may. These individuals also tend to have a rich and complex emotional life. Conversely, individuals who are low on Openness tend to, prefer familiarity to novelty, are conventional in behaviour and conservative in their outlook, and experience emotions less intensely (Cavanaugh, 1990; Costa & McCrae, 1992; Larsen & Buss, 2005; Ryder et al., 2005).

The Agreeableness domain is primarily a dimension of interpersonal tendencies and describes the degree of an individual's capacity for sympathy, trust, cooperation and altruism. Within this domain being compassionate, trusting and cooperative is contrasted with being cynical and antagonistic (Costa & McCrae, 1992; Larsen & Buss, 2005; Ryder et al., 2005). The facets that comprise this domain include Trust, Straightforwardness, Altruism, Compliance, Modesty, and Tender-Mindedness and are measured by six facet scales on the NEO-PI-R (Costa & McCrae, 1992). An agreeable individual is characterised by being altruistic, sympathetic, and cooperative, and is eager to help others and believes others will be helpful in return. In contrast the antagonistic or disagreeable individual is sceptical of the other persons intentions, is egocentric and competitive (Costa & McCrae, 1992; Larsen & Buss, 2005; Ryder et al., 2005). Digman (1990) states that "Agreeableness - appears to involve the more humane aspects of humanity - characteristics such as altruism, nurturance, caring and emotional support at the one end of the dimension, and hostility, indifference to others, self-centredness, spitefulness, and jealousy at the other" (p. 423 – 424).

Finally, Conscientiousness describes the degree to which an individual, is persevering and responsible, and has the ability to plan, organise and carry out tasks (Costa & McCrae, 1992; Larsen & Buss, 2005; Ryder et al., 2005). The facets that comprise this domain include Competence, Order, Dutifulness, Achievement Striving, Self-Discipline, and Deliberation and are measured by six facets scales on the NEO-PI-R (Costa & McCrae, 1992). A Conscientious individual is purposeful, strong-willed, motivated, well organised, and determined. Whereas individuals low on Conscientiousness tend to be unreliable, lazy, less goal driven, experience difficulty in planning, organising and carrying out tasks, and are more hedonistic (Costa & McCrae, 1992; Larsen & Buss, 2005; Ryder et al., 2005).

There is growing empirical evidence that the five personality domains outlined above generalize well across cultures (Heuchert et al., 2000; Huang, Church, & Katigbak, 1997; McCrae & Costa, 1997; McCrae, Costa, del Pilar, Rolland, & Parker, 1998). An investigation into the factor structure of the NEO-PI-R across cultures has revealed that the five factor structure has been replicated beyond chance across 26 different cultures with some variation to the original (McCrae, 2002). However there is a dearth of studies on the applicability of the Five Factor Model of Personality in South Africa. Nevertheless South African studies have yielded further support for the universality of the Five Factor Model of Personality (Heuchert, 1998; Heuchert et al., 2000; Taylor, 2004; Van der Walt, Meiring, Rothmann, Barrick, 2002, as cited in Taylor, 2004).

It is noteworthy to mention that the NEO-PI-R was the instrument that was primarily utilised to measure the Five Factor Model of Personality, that is, in the studies investigating the applicability of the Five Factor Model of Personality in the South Africa context. For example the study conducted by Heuchert et al. (2000) investigated the structure of the Five Factor Model in a sample of university students. In that study the NEO-PI-R was administered to a sample that consisted of 408 university students from the University of the Witwatersrand and the Rand Afrikaans University (now the University of Johannesburg). Females comprised 77% of the sample and the mean age was 19.6 with a standard deviation of 3.2. The date the study was conducted was not

indicated. The NEO-PI-R was factor analysed at the facet level with varimax rotation and results in this regard revealed that the structure of the Five Factor Model was reproduced for the entire sample, that is, across racial groups (Heuchert et al., 2000). In addition, that study as well as another relatively recent published study, concluded that the NEO-PI-R could serve as a useful instrument for the assessment of personality in South Africa, and the standardization and development of norms for the South African population should be undertaken (Heuchert, 1998; Heuchert et al., 2000).

2.5 CURRENT PERSPECTIVES ON PERSONALITY TRAITS AND SUICIDAL BEHAVIOUR

During the past three decades there has been an increasing interest in the role of personality traits as risk and, to a lesser extent, as protective factors, in understanding suicidal behaviour (Brezo et al., 2006b; Statham et al., 1998). Notwithstanding that suicidal behaviour includes aspects of psychological, neuropsychological, biological, social, cultural, interpersonal, existential, philosophical and other variables (Brezo et al., 2006b; Fergusson et al., 2000; Schlebusch, 2005b; Statham et al., 1998).

Pervin and John (1997) suggest that trait theories facilitate the exploration of the relationship between personality and various behaviours. Specifically, personality traits have been implicated as playing an important role in understanding suicidal behaviour and have a number of properties that make them targets in the area of suicidal behaviour research. Brezo et al. (2006b) explain that personality traits:

> "*affect variables that may contribute to diathesis for suicide, namely our perception of and adaptation to the environment and 'self'. Second, their maturational patterns may render them more suitable for long-term public health interventions compared to other, more changeable risk factors. More specifically, even though traits are amenable to modification only relatively early in life, any intervention done at this time could have long-lasting affects*" (p.182).

In addition, personality trait predictors of suicidal behaviour could be useful in identifying subgroups of suicidal individuals before these individuals' attempt, repeatedly attempt or complete suicide (Brezo et al., 2006b).

Empirical evidence to date has pointed to selected personality traits as being useful markers of suicide risk. Brezo et al. (2006b) reviewed 219 original studies which were published in MEDLINE and PsychINFO databases since 1977 and 1985 respectively and additional studies identified from the reference lists of the publications. The studies in this review utilized standardized personality measures to investigate the role of personality traits in suicidal behaviours, namely suicide ideation, suicide attempts, or suicide completions. The review found that hopelessness, higher scores on Neuroticism, and to a lesser extent, lower scores on Extroversion, was implicated as being useful in screening for risk across all of the three suicidal behaviours. However the review conducted by Brezo et al. (2006b) as well as the literature review conducted for the purpose of the present study revealed that the traits of Neuroticism and Extraversion have been most often studied.

Relative to the studies that have investigated suicidal behaviours within the Five Factor Model framework, more studies have considered a three dimensional trait model (Psychoticism, Extraversion, and Neuroticism) often referred to as the 'big three'. It is noteworthy to mention that the domains of Extraversion and Neuroticism are included within both the Five Factor Model and the three dimensional trait model. In addition, the Psychoticism domain of the big three is conceptualised as reflecting the combination of Conscientiousness and Agreeableness in the Five Factor Model (Digman, 1990; Eysenck & Eysenck, 1985; Watson & Hubbard, 1996). Despite this, to date, the Five Factor Model is the taxonomy of traits that has received the most support empirically and from theoretical literature, and has been extensively utilised in various lines of research (Costa & McCrae, 1992; Heuchert et al., 2000; Larsen & Buss, 2005; Murphy & Davidshofer, 2005). Given this, and taking into account that the traits of Neuroticism and Extraversion have been most often studied, studies investigating the relationship between suicidal behaviours and the five domains elaborated in the Five Factor Model have provided a

greater understanding of the nature of the relationship between suicidal behaviours and personality. A number of these studies are discussed in more detail below.

Duberstein et al. (2000) conducted a study that investigated the association between suicidal behaviour and the personality traits that constitute the Five Factor Model of Personality. The sample consisted of 81 depressed patients, 47 of whom were women and 34 were men. The age ranged from 50 to 87 years. In that study 34 depressed inpatients who were admitted to hospital following a suicide attempt were compared with 47 similarly depressed inpatients whose admission was not precipitated by a suicide attempt. The sample was relatively homogeneous diagnostically and demographically. The year the study was conducted was not indicated. The NEO-PI-R was utilised to measure personality traits and the Scale of Suicidal Ideation, the Spectrum of Suicidal Behaviour Scale and previous psychiatric and medical charts was utilised to measure suicidal behaviour. Findings of that study revealed that lower Extraversion distinguished individuals who had made a suicide attempt from those who had never made an attempt. Neuroticism was associated with suicide ideation. Finally, low scorers on Openness were less likely to feel, or report feeling, suicidal, and it was proposed that affective muting may serve as being adaptive, however increases risk for late-life completed suicide (Duberstein et al., 2000). Consonant with Duberstein et al. (2000) finding on Openness, is the preliminary findings from a psychological autopsy study (Duberstein, Conwell, & Caine, 1994) conducted in 1992, which investigated age differences in the personality characteristics of suicide completers. Duberstein et al. (1994) also found that among older adults, low Openness to Experience was related to completed suicide. Other studies which have also investigated the relationship between suicidal behaviours and the five domains elaborated in the Five Factor Model, operationalised by the NEO-PI-R , have found that the trait Agreeableness has been associated with a history of suicide attempts (Useda et al., 2004) and increased suicide ideation (Kerby, 2003; Useda et al., 2004). Finally, low levels of Conscientiousness have been correlated with suicide ideation (Kerby, 2003; Peirson, 2001; Pienaar et al., 2007; Velting, 1999a) and younger suicide completers have been found to obtain considerable lower scores on Conscientiousness

than older completed suicide (Duberstein et al., 1994). These findings demonstrate the utility of investigating suicidal behaviour within the Five Factor Model of Personality.

More specific personality features, such as impulsivity, hostility, and negativism, have been found to cluster in suicidal individuals (Engstrom et al., 1997). It has also been previously proposed that adolescents who are anxious, neurotic, aggressive, angry and impulsive, are more likely to engage in suicidal behaviours (Beautrias, 2000). Janowsky et al. (2002) report that suicidal individuals are impulsive, sensitive to interpersonal rejection, introverted, and tend to excessively self punitive, self critical, and perfectionistic. The above personality features are conceptualised within the Five Factor Model of Personality.

2.5.1 Personality Traits and Suicide Ideation

Studies investigating personality traits as correlates of suicidal behaviour have mostly focused on suicide attempts as compared to suicide ideation. However focusing on suicide ideation has several important implications. As mentioned earlier, suicide ideation may be an antecedent for engaging in more serious suicidal behaviour, hence focusing on personality traits as correlates of suicide ideation could serve as being useful in identifying subgroups of suicidal individuals and could inform intervention strategies before these individuals engage in more serious suicidal behaviour.

Internationally a few studies have investigated the association between suicide ideation and the personality traits that constitute the Five Factor Model of Personality (Duberstein et al., 2000; Kerby, 2003; Useda et al., 2004; Velting, 1999a). A literature review for the purpose of the present study revealed that to date in South Africa there is no published study on the relationship between suicidal behaviour and the Five Factor Model of Personality. This represents a serious gap in research data, as, to date, the Five Factor Model is the taxonomy of traits that has received the most support empirically and from theoretical literature, and has been extensively utilised in various lines of research (Costa

& McCrae, 1992; Heuchert et al., 2000; Larsen & Buss, 2005; Murphy & Davidshofer, 2005).

Even though empirical evidence suggests that individuals who express suicide ideation, generally experience fewer positive emotions and report anhedonia more often (Useda et al., 2004; Nock & Kazdin, 2002), psychoticism correlates positively with suicide ideation (Brezo et al., 2006a), and perfectionism, self criticism, cynicism and extreme scores on trait anxiety are predictors of suicidal ideation (Cox et al., 2004; Goldston et al., 1996). Extensive empirical evidence indicates that high scores on the trait Neuroticism is one of the most prominent predictors of suicide ideation (Brezo et al., 2006b; Duberstein et al., 2000; Enns et al., 2003; Fanous et al., 2004; Fergusson et al., 2003; Kerby, 2003; Peirson, 2001; Statham et al., 1998; Useda et al., 2004). However it should be noted that the relation between Neuroticism and suicide ideation has been most often studied. Studies that have investigated suicide ideation within the Five Factor Model have also found that suicide ideation is predicted by high Neuroticism (Duberstein et al., 2000; Kerby, 2003; Peirson, 2001; Useda et al., 2004; Velting, 1999a). In addition, suicide ideation was further predicted by low Extraversion, low Agreeableness, and low Conscientiousness (Kerby, 2003), low Extraversion and low Conscientiousness (Peirson, 2001; Velting, 1999a). Duberstein et al. (2000) also found that low Openness was found to be related to being less likely to feel suicidal or to report suicide ideation, despite being related to completed suicide. A study which aimed to identify specific lower level traits that comprise the five global domains, found that within the domain of Neuroticism, only elevated scores in depression was significantly associated with suicide ideation, within the Extraversion domain, only low in warmth and positive emotion was associated with suicide ideation, and within the Agreeableness domain only high modesty was related to suicide ideation (Useda et al., 2004).

The inconsistent findings with regard to low Extraversion, Agreeableness, and Conscientiousness, respectively, warrant more studies investigating the Big Five traits as predictors of suicide ideation. However it must be noted that the inconsistent findings may be as a result of differences related to sample size, instruments measuring suicide

ideation and methodology. For example the study conducted by Velting (1999a), which comprised of a sample of 185 undergraduate students, of which 126 were female and 59 were males. Ages ranged from 18 to 23 years. Findings from that study revealed that females and males did not differ in suicide ideation however low Neuroticism predicted suicide ideation only for females, whereas low Conscientiousness predicted suicide ideation only for the males. In comparison, the study conducted by Kerby (2003) comprised of a sample of 474 undergraduate students, of which 323 were female and 151 were male. Ages ranged from between 17 to 25 years. Findings from that study also indicated that females and males did not differ in suicide ideation. In addition, gender differences did not interact with personality in predicting suicide ideation. In that sample high Neuroticism, low Extraversion, and low Conscientiousness, respectively, predicted suicide ideation in both genders. The discrepant findings with regard to gender could be explained as a result of differences in sample size, particularly in relation to the males, that is 59 males (Velting, 1999a) and 151 males (Kerby, 2003). Furthermore different instruments were utilized to measure suicide ideation. Suicide was measured by the Adult Suicidal Ideation Questionnaire and by the Suicidal Ideation Subscale of the Suicide Probability Scale, respectively.

A South African study (Pienaar et al., 2007) investigated whether suicide ideation among a sample of 1794 uniformed police members of the South African Police Service could be predicted by occupational stress, personality traits, and coping strategies. Compared to the above studies, the South African sample was drawn from a different population group, the focus on personality was not primary, and utilised the Personality Characteristics Inventory to measure personality. Hence to the extent that comparison is possible, findings related to personality traits revealed that low emotional stability and low Conscientiousness, were also found to be predictors of suicide ideation as measured by the Adult Suicidal Ideation Questionnaire.

In conclusion, a review of 219 studies that investigated personality traits as correlates of suicidal behaviour, referred to earlier, found that the studies which had controlled for covariates, such as psychiatric disorders and distal and proximal environmental stressors,

concluded that the contribution of personality traits remained significant (Brezo et al., 2006b). However there are published studies that have found that personality traits were no longer associated with suicidal behaviour after controlling for the influence of depression on the relationship (Brezo et al., 2006a; Cheng et al., 1997; Cox et al., 2004; Dumais et al., 2005; Statham et al., 1998; Useda et al., 2004). For example Neuroticism (Brezo et al., 2006a; Useda et al., 2004) and Extraversion (Statham et al., 1998) were no longer associated with suicide ideation after controlling for the influence of depression. Findings from the study conducted by Cox et al. (2004) revealed that Neuroticism was only associated with current but not lifetime ideation after psychiatric variables, such as depression, were controlled. A discussion in this regard outlined that Neuroticism may complement psychiatric diagnoses in understanding the prevalence of suicide ideation (Cox et al., 2004). These findings alert to the importance of considering the influence of depression when investigating the nature of the relationship between personality traits and suicidal behaviour.

2.6 THE INFLUENCE OF DEPRESSION ON SUICIDAL BEHAVIOUR AND PERSONALITY

2.6.1 Depression and Suicidal Behaviour

"Suicidal behaviour according to psychiatric practice and the psychiatric literature, typically is seen as a symptom of some underlying psychiatric disorder, particularly depression" (Ahrens et al., 2000, p. 116). The association between suicidality and depression has been clearly established as extensive empirical evidence shows that depression is significantly related to suicidal behaviour. Studies of suicidality consistently demonstrate that suicidal behaviour most often occurs within the context of mood disorders, namely depressive disorder (Kuo et al., 2001; Mann, 2002; Schlebusch, 2005a, 2005b; Statham et al., 1998) and depression is one of the most important risk factors associated with suicidal behaviour (American Psychiatric Association, 2000; Sadock & Sadock, 2003; Schlebusch, 2005a, 2005b; Scocco et al., 2000; Vuorliehto et al., 2006).

A literature review revealed there is extensive empirical evidence on the association between depression and suicide ideation (Ahrens et al., 2000; American Psychiatric Association, 2000; Comer, 1995; Kaplin & Sadock, 1998; Kisch et al., 2005; Sadock & Sadock, 2003; Schlebusch, 2005a, 2005b; Scocco et al., 2000; Thompson et al., 2005; Vuorliehto et al., 2006; Weber et al., 1997; Zhang & Jin, 1996). Several research studies reveal that depression is related to suicide ideation and attempts in South African school children (Schlebusch, 2005a), late adolescents (Peirson, 2001; Thompson et al., 2005; Weber et al., 1997) and young adults, including students (Kisch et al., 2005; Weber et al., 1997; Zang & Jin, 1996). It is important to point out that these research studies note that not all depressed individuals contemplate or attempt suicide. Furthermore, suicidal behaviour does occur in the absence of depression (Ahrens et al., 2000, Kisch et al., 2005; Mazza & Reynolds, 1998; Sadock & Sadock, 2003).

A National College Health Assessment survey measured depression, suicide ideation and suicide attempts among 15, 977 college students in the USA (Kisch et al., 2005). The survey was conducted across 28 campuses. Findings indicate that only 33.4% of the students who reported depressive symptoms seriously considered attempting suicide. This reveals that most of the students who reported depressive symptoms did not consider suicide. However, of those students who reported suicide ideation, depressive symptoms were almost always present. Furthermore of the 236 students who reported an attempted suicide, 92.8% experienced depressive symptoms (Kisch et al., 2005). This survey revealed that not all depressed students exhibited suicidal behaviour. Secondly, suicide ideation and attempts were significantly associated to depressive symptoms and thirdly, suicidal behaviours did occur in the absence of depressive symptoms.

Schlebusch (2005a) reports in a recent South African study, depression was implicated as the most common diagnosis present in 63.9% of the non-fatal suicidal presentations at a large academic hospital. It has also been reported approximately 10% to 20% of suicidal, depressed patients commit suicide in the UK (Ahrens et al., 2000). A study by the World Health Organization shows that 8.8% of all general practice patients exhibit some degree of suicide ideation. Of these patients, only 34.5% presented with depression (Ahrens et

al., 2000). Hence, 65% of suicide ideators were not depressed. It is important to mention that Sadock and Sadock (2003) alert their reader to the fact that suicidal behaviour does occur in the absence of depression.

In summary, the literature reviewed above indicates that depression is significantly associated with suicidal behaviour. Albeit, suicidal behaviour occurs in absence of depression and presenting with depression does not necessarily imply the eventual engagement in suicidal behaviour.

2.6.2 Depression and Personality

Despite extensive conceptual literature and research in this area, the full nature and extent of the relationship between depression and personality remains unclear. It has been proposed that this is as a consequence of the complexity of conceptualisations as well as the wide variability in conceptualisations, measurement, and research designs utilised to investigate the relationship between personality and depression (Shea & Yen, 2005). Nevertheless, it is well established that there is an association between personality traits and depression (Akiskal, Hirschfeld, & Yerevanian, 1983; Clark, Watson, & Mineka, 1994; Enns & Cox, 1997; Farmer & Nelson–Grapy, 1990; Farmer et al., 2002; Hirschfeld et al., 1983; Hirschfeld et al., 1989; Holahan & Moos, 1991; Katon et al., 1994; Klein, Wonderlich, & Shea, 1993; Peirson & Heuchert, 2001; Petersen, Bottonari, Alpert, Fava, & Nierenberg, 2001; Ryder et al., 2005; Shea & Yen, 2005; Watson & Clark, 1995).

A number of different lines of research have investigated the nature and the extent of the relationship between personality traits and depression. These include the investigation of personality traits as risk factors or as a vulnerability factor to the development of depression. Other investigations have focused on the state effect of depression on personality traits, in effect, the possible influence of depression on personality presentation. Conversely, studies have investigated the personality traits of depressed individuals. Another area of research has investigated the possible mediation effects of personality on depression. These different lines of research are reviewed below.

Findings of several studies suggest that certain personality traits in the domain of Neuroticism and low self esteem are risk factors for the development of depression and predict poor long term prognosis (Ormel, Oldehinkel, & Volleberg, 2004). This type of relationship between personality and depression has been conceptualised within the predisposition and vulnerability model, which explains that personality traits may provide a general predisposition to the development of depression (Akiskal et al., 1983; Clark et al., 1994; Enns & Cox, 1997; Farmer & Nelson–Grapy, 1990; Klein et al., 1993; Shea & Yen, 2005; Watson & Clark, 1995). It has been emphasised that despite the conceptual appeal of this model, difficulty related to obtaining a premorbid assessment of personality hinders this model from being tested empirically (Clark et al., 1994; Klein et al., 1993; Shea & Yen, 2005). However, a number of studies have utilized various research methods that facilitate the investigation of personality as risk factors for the development of depression or as predictors of poor long term prognosis. Examples include a longitudinal, prospective study conducted in the mid 1970's (Hirschfeld et al., 1989). The participants' ages ranged from 17 to 41 years and comprised 2400 first degree relatives of about 900 inpatients and outpatients who presented for the treatment of moderate to severe depression or mania at one of five major university medical centers throughout the United States. The findings of that study revealed the personality features characterising decreased emotional strength, such as Neuroticism, less emotional stability and the decreased ability to react to stressful situations, discriminated prospectively between subjects who suffered a first onset of major depression in a six year period from those who would not in this familial high risk group (Hirschfeld et al., 1989). Consonant with those findings are the findings of a prospective Dutch psychiatric general population based survey, comprising 4796 respondents aged 18 to 64 years (Ormel et al., 2004). Psychiatric and personality data on Neuroticism, depressive coping style, self esteem and mastery was obtained from the respondents at three time points, 1996, 1997 and 1999, twelve and twenty four months apart. Findings revealed that personality related vulnerability that is high levels of Neuroticism and depressive coping style with low self esteem and mastery, were present 1 year before the onset of major depressive episodes (Ormel et al., 2004). Another study conducted in 1993 that investigated the prediction of the persistence of depression in primary care. Found that the severity of depression and

high Neuroticism scores were the best predictors of persistent depressive symptoms in a sample of 164 patients, between the ages of 18 and 75 beginning antidepressant treatment for depression at two primary care clinics in Western Washington State (Katon et al., 1994).

Despite the findings outlined above, Shea and Yen (2005) argue that given the complex links between personality and depression, there is no one model, such as the predisposition and vulnerability model that can explain this association. Furthermore Duggan et al. (2003) report that raised Neuroticism scores have been previously shown to be as a result of unmeasured sub clinical depression. Consonant with this report are findings of a number of studies that have shown the personality trait, Neuroticism, which has been previously implicated as being a vulnerability factors for the development of depression, does not measure trait vulnerability to depression. Instead, high Neuroticism scores reflect symptoms of depression (Farmer et al., 2002). Related to this is the argument that the association between Neuroticism and depression is a measurement artefact as Neuroticism and depression share a number of items in common (Duggan et al., 2003). Furthermore, empirical evidence has previously shown that during depressed mood or a clinically depressed state, the scores for Neuroticism are increased and those of self esteem and mastery are reduced (Enns & Cox, 1997; Farmer et al., 2002; Hirschfeld et al., 1983; Hirschfeld et al., 1989; Ormel et al., 2004).

A review of studies conducted by Enns and Cox (1997) that span over 3 decades, in which clinically depressed adult patients were used to explore the association between personality dimensions and depression, found that numerous personality factors show a significant relationship with depressive illness. However, the strongest research evidence pertaining to the association between personality and depression is available for Neuroticism**.** Whereas lower Extraversion, self-criticism, and perfectionism revealed a significant and consistent association with depression (Enns & Cox, 1997). As compared to studies that have examined the relationship between depression and Neuroticism and Extraversion, respectively, there is a smaller amount of studies that have investigated the relationship between depression and other personality traits, such as those provided by

the Five Factor Model of Personality (Petersen et al., 2001; Shea & Yen, 2005; Wolfenstein & Trull, 1997;). However, at least three studies have found that higher Openness to Experience scores were positively associated with depression (Bagby, Schuller, Levitt, Joffe, & Harkness, 1996; Trull & Sher, 1994; Wolfenstein & Trull, 1997). Also lower levels of Conscientiousness have been associated with higher levels of hopelessness which is a core feature of depression (Velting, 1999b). Lower Conscientiousness has also been associated with the personality profile of angry hostile depressed patients (Bagby, Kennedy, Dickens, Minifie, & Schuller, 1997).

Ryder et al. (2005) report that studies that have investigated the Five Factor Model personality traits in depressed individuals, consistently found that these individuals scored higher on Neuroticism, lower on Extraversion and lower on Conscientiousness, as compared to healthy control samples. Consonant with this report is one of the findings of a study which examined the relationship of the NEO Five – Factor Inventory results with psychosocial variables in a sample of 76 depressed outpatients, 44 females and 32 males aged between 18 and 65 years, with the mean age of 40.5 years (Petersen et al., 2001). That study also compared the NEO results with published test norms and found that the NEO five – factor profile of the sample of depressed outpatients was characterized by elevated Neuroticism scale sores, and lowered Extraversion and low Conscientiousness scale scores (Petersen et al., 2001). The date that the study was conducted was not indicated.

Empirical evidence has also suggested that personality has a mediation effect on depression or depressed mood. For example Holahan and Moos (1991) report that findings of a number of studies indicate that personality characteristics that involve confidence, a more easy going disposition, more family support, and fewer avoidant coping strategies, operate either directly or indirectly through coping responses, in predicting reduced depression. Another study (Besser & Shackelford, 2007) investigated the mediation effects of the Five Factor Model of Personality on negative mood as characterised by feeling depressed, hostile and anxious, in a quasi field study of a 100 employees participating in their annual planned vocation. The participants consisted of

48 males and 52 females, with a mean age of 34.59 years and were employee individuals from urban areas across Israel, the year that the study was conducted was not indicated. Nevertheless, findings revealed that agreeable individuals had lower negative mood while higher Conscientiousness was related to lower negative mood, higher confirmation of positive affective expectations, and lower perceived stress (Besser & Shackelford, 2007). The personality traits of Conscientiousness, Extraversion and emotional stability have also been previously related to subjective well being (McCrae & Costa, 1991; Watson & Clark, 1992).

In conclusion, from the literature reviewed it is evident that although the full nature and the extent of the relationship between depression and personality remains unclear, there is extensive empirical evidence indicating that personality traits are related to depression. While selected personality traits appear to be related to psychological adjustment.

CHAPTER 3: METHODS

3.1 RESEARCH AIMS

The central aim of this quantitative study was to investigate whether a relationship exists between personality and suicide ideation, and then to factor out the impact of depression on this relationship. The study determined which of the five domains of the Five Factor Model of personality was significantly related to suicide ideation in a sample of young adults. Following this, the association between depression and suicide ideation and depression and personality was determined. Then, the impact of depression on the possible relationship between personality and suicidal ideation was considered as a potential confounder and controlled for in the assessment of this relationship. This study also assessed the prevalence rate of suicide ideation among young adults.

3.2 RESEARCH QUESTIONS

1. What is the prevalence rate of suicide ideation in the present sample?
2. Is there a relationship between personality and suicide ideation?
3. Is there a relationship between personality and suicide ideation when the effects of depression have been factored out from this relationship?

The first phase of this study entailed assessing the prevalence rate of suicide ideation in the given sample. The second phase investigated the relationship between personality and suicide ideation. Following this, the association between depression and suicide ideation and depression and personality was determined. Then the impact of depression was factored out from the relationship between personality and suicide ideation. The second phase of the study is therefore correlational. The correlational nature of the study allowed inferences to be drawn (Bless & Kathuria, 2004) about the relationship between personality and suicide ideation. It must be noted that inferences about causality cannot be drawn. In other words, the relationship between personality and suicide ideation is one of association rather than causation.

3.3 DESIGN

The present study can be classified as a quantitative, non-experimental, correlational design. It is important to note here, that this study is non-experimental as the investigator cannot manipulate the independent variable and there is no control and randomization (Bless & Higson-Smith, 1997; Bless & Kathuria, 2004; Neuman, 2000). Furthermore the correlational aspect of this study is based on the measurement of two or more variables in order to detect the existence of an association or co-variance between variables and is often utilized in order to detect both the existence of a relationship and the strength of the relationship between variables, even when a variable could be influenced by other variables (Bless & Higson-Smith, 1997; Bless & Kathuria, 2004; Liebert & Liebert, 1995; Neale & Liebert, 1980; Neuman, 2000). It is essential to point out that the correlational nature of this study accommodated the inclusion of a third variable (Bless & Kathuria, 2004; Neale & Liebert, 1980; Neuman, 2000). Hence, the degree to which depression contributes variance to the relationship between personality and suicide, can be assessed.

3.4 SAMPLE

A snowball sampling technique was employed to recruit participants. Neuman (2000) explains "Snowball sampling is a multistage technique. It begins with one or few cases and spreads out" (p. 199) as the researcher can obtain cases using referrals from one or more cases and then referrals from those cases and so forth. This technique allowed for both individual and groups of students to be approached and asked for their participation in the study, potential participants were further identified from these encounters and so forth. The 83 participants volunteered to take part in the study and were required to give informed consent of participation in the study. This is discussed in more detail in the procedure section below. The sample consisted of students from the University of the Witwatersrand (N=83) with ages ranging from 22 to 28 years (mean age = 24, standard deviation = 2.18). The sample comprised 63 females (mean age = 24.12, standard deviation=2.20) and 20 males (mean age = 23.65, standard deviation, 2.13). A two sample t-test found no significant difference in age in the PANSI Negative and PANSI

Positive Ideation between males and females. This information is reported in Table 3-1. The statistical results generated for the two sample t-test can be found in Appendix C.

Table 3-1: Two Sample t Test between Males (n=20) and Females (n=63) with regard to Age, PANSI NI, and PANSI PI

	Mean F (SDF)	Mean M (SDM)	t-value	p
Age (years)	24.12 (2.2)	23.65 (2.1)	-0.86	0.3980
PANSI NI	1.43 (0.8)	1.43 (0.9)	-0.03	0.9737
PANSI PI	3.40 (0.6)	3.53 (0.5)	0.82	0.4126

3.5 INSTRUMENTS AND TECHNIQUES

3.5.1 The Positive and Negative Suicide Ideation Inventory (PANSI)

The PANSI is characterised as a two-factor measure of suicide ideation as this inventory was designed to measure both negative risk and protective (buffering) factors in the analyses of suicide related behaviours. The measure is based on the clinical assumption that many negative thoughts associated with few positive thoughts, present a significant risk factor for suicidal behaviour. The negative risk factors are reflected in the PANSI's Negative Ideation (PANSI-NI) subscale and the protective factors are reflected in the PANSI's Positive Ideation (PANSI-PI) subscale (Muehlenkamp, Gutierrez, Osman, & Barrios, 2005; Osman, Gutierrez, Kopper, Barrios, & Chiros, 1998; Winters, Meyers, & Proud, 2002). At present, the PANSI is the only scale that simultaneously measures risk and protective factors when assessing suicide (Muehlenkamp et al., 2005). As such this instrument allows for a comprehensive approach to investigating the relationship between personality and suicide ideation because the personality traits that are related to risk and protective factors, respectively, can be identified.

Specifically, the PANSI is a self-administered brief 14-item self-report scale. Of the 14 items, 8 items measure negative ideation, which comprise the negative risk factors and 6 items measure positive ideation, which comprise protective factors. It is reported that the PANSI has high reliability of 0.82 for the positive ideation scale and 0.93 for the negative ideation scale (Osman et al., 1998). It is important to mention that even though the PANSI is a relatively new scale, it has been viewed as being psychometrically sound (Lester, 1998; Osman et al., 1998; Winters et al., 2002). Despite the fact that the PANSI items were initially generated by and validated with non-clinical college students (Osman et al., 1998), there is empirical evidence of concurrent and predictive validity within young adults, high school and inpatient adolescent samples (Muehlenkamp et al., 2005).

Winters et al. (2002) reports "the PANSI is a new scale with few publications with adult samples and a single adolescent study" (p. 1158). In South Africa this scale has been previously utilized in a number of unpublished studies, one of which was conducted by Peirson (2001). In that study 113 undergraduate university students were assessed on the PANSI to determine the prevalence rate of positive and negative suicide ideation in that sample. Results on the levels of PANSI NI revealed a mean of 1.43 and standard deviation of .70, and on the PANSI PI a mean of 3.75 and standard deviation of .76. Reliabilities of these respective scales were not indicated.

The present study acknowledges the PANSI is a relatively new scale with few publications and it is also acknowledged that there is no normative data specifically for the PANSI in South Africa. Given this, it is important to note here that the reliability scores of the PANSI indicate that it is a psychometrically sound instrument to utilise. Secondly, to date this is the only instrument that facilitates for the assessment of both positive, protective factors and negative, risk factors related to suicidal behaviour. Finally, this instrument has been used in a similar research study in South Africa. This provides an adequate reason for utilizing the PANSI in the present pioneer study, which investigates the relationship between suicide ideation and personality within the South African context.

3.5.2 The Revised NEO Personality Inventory (NEO-PI-R)

The NEO-PI-R was developed through rational and factor analytic methods to operationalize the Five-Factor Model of personality and is a widely used, self-report measure of personality (Costa & McCrae, 1992; Heuchert, 1998; Heuchert et al., 2000; McCrae & Costa, 1997; McCrae et al., 1998). This instrument is the most useful measure of the Five Factor Model of personality (Heuchert et al., 2000), which is the predominant model of personality trait structure (Digman, 1990). The respective five factors are defined by groups of intercorrelated traits. More specific traits are referred to as facets and each cluster of facets is referred to as a domain. In other words, the five domains are represented by six facets which comprise the respective domains (Costa & McCrae, 1992).

Specifically, the NEO-PI-R (Costa & McCrae, 1992) is a self-administered 240-item self-report scale that measures personality across five factors. The five factors measured by the NEO-PI-R are referred to as domain scales. The five domain scales are namely, Neuroticism, Extraversion, Openness to experience, Agreeableness and Conscientiousness and have been consistently identified in factor-analytic studies (Duberstein et al., 2000). The five domain scales, together with thirty lower order facet scales, allow for a comprehensive assessment of personality (Costa & McCrae, 1995, 1997). Internal consistency coefficients of the NEO-PI-R domain and facet scales range from 0.86 to 0.92 and 0.56 to 0.81, respectively (Costa & McCrae, 1992). The NEO-PI-R has shown long term stability as indicated by retest reliability. Duberstein et al. (2000) report that longitudinal studies conducted during periods of up to 7 years, frequently revealed test-retest correlation coefficients greater than .6. More specifically, in a sample of 208 college students, retest reliability at the three month interval ranged from .75 to .83. In addition, a study of clinical outpatients revealed that the six month rest-retest reliability coefficients ranged from .76 to .84 (Costa & McCrae, 1992).

There is growing empirical evidence that the five personality domains generalize well across cultures (Huang et al., 1997; McCrae & Costa, 1997; McCrae et al., 1998). An

investigation into the factor structure of the NEO-PI-R across cultures has revealed that the five factor structure has been replicated beyond chance across 26 different cultures with some variation to the original (McCrae, 2002). Findings of a study conducted in Zimbabwe revealed that in comparison to the USA normative sample there was a significant difference only for Neuroticism, between these two groups (McCrae, 2001). Whereas, Yoon, Schmidt and Ilies (2002) report that in a study conducted in Hong Kong there was a significant difference only in the domain of Extraversion, with scores from that study being approximately one-quarter standard deviation lower than the USA normative sample. There is a dearth of literature on the applicability of the Five Factor Model of Personality in South Africa. Of the few, and mostly unpublished, studies undertaken on the FFM in South Africa, the NEO-PI-R is the instrument that has been primarily used to measure this model. Two recently published studies conclude that the NEO-PI-R could serve as a useful instrument for the assessment of personality in South Africa, and the standardization and development of norms for the South African population should be undertaken (Heuchert, 1998; Heuchert et al., 2000).

Despite the fact that there is no normative data for the NEO-PI-R in South Africa, at least one unpublished study (Peirson, 2001), has utilized this instrument in the South African context. To date this is the only study within the South African context that is similar to the present study. In that the NEO-PI-R was also employed to measure personality, in order to investigate the relationship between personality and suicidal behaviour, namely suicide ideation, in a sample of university students.

Notwithstanding numerous reports on the utility of the NEO-PI-R in clinical, vocational and research settings, it has been advocated that this instrument has proven its value most conclusively in personality research. It provides a comprehensive assessment of the major dimensions of personality and is a very useful tool in almost any research on personality correlates (Costa & McCrae, 1992). These authors further advocate it would be possible to make specific inferences about the relation between the NEO-PI-R scales and other variables (Costa & McCrae, 1992). The Five Factor Model (Cox et al., 2004; Enns et al., 2003) and more specifically, the NEO-PI-R (Duberstein et al., 2000; Peirson,

2001; Useda et al., 2004; Velting, 1999a), has been previously utilized in research investigating the association between personality and suicide ideation. From the literature reviewed above, it could be concluded that the NEO-PI-R is a sound and reasonable choice for the measurement of personality in the present study.

3.5.3 The Becks Depression Inventory (BDI)

The BDI was originally constructed from a clinical consensus about the symptoms displayed by depressed patients (Beck, Ward, Mendelsohn, Mock, & Erbaugh, 1961) and designed to measure the presence and degree of depression (Beck & Steer, 1993). Since the BDI was introduced in 1961, this self-report scale has become one of the most widely used instruments in measuring the presence and intensity of depressive symptoms in psychiatrically diagnosed patients and in the detection of depression in normal populations. In addition, this instrument is used frequently in research studies. This report is confirmed in published studies (Moosa et al., 2005; Peirson & Heuchert, 2001; Seedat, Nyamai, Njenga, Vythiljngum, & Stein, 2004; Spangenberg & Theron, 1999) that have successfully utilized this instrument in the South African context.

The items of the BDI were not selected to reflect a particular theory of depression (Beck, Steer, & Garbin, 1988) and are consistent with 6 of the 9 Diagnostic and Statistical Manual of Mental Disorders (DSM) categories for the diagnosis of depression (Beck et al., 1988; Moosa et al., 2005). Beck et al. (1988) explain that the absence of the 3 categories, namely increased sleep, increased appetite and agitation, was deliberate. As increased sleep and increased appetite occurs frequently in normal populations and the inclusion of these categories would produce ‘false positives’. Given that agitation is a clinically observable sign, it was not considered appropriate for a self report instrument (Beck et al., 1988). Rudd and Rajab (1995) caution against labelling individuals as clinically depressed because of obtaining high BDI scores.

Specifically, the BDI is a self-administered 21-item self-report scale which purports to measure the presence and degree of depression (Beck et al., 1961). Internal consistency

studies have shown a correlation coefficient of 0.86 for the test items (Beck & Steer, 1993). The BDI is designed to measure changes in mood over time, thus test-retest reliability is of no relevance to this instrument. The BDI is a reputable measurement of depressive symptoms (Beck & Steer, 1993).

The BDI as a measure of depression has been successfully utilized in numerous studies. For the purpose of this study attention will be directed to studies that have utilized the BDI in relation to suicidal behaviour, personality and mood. Beck et al. (1988) provide an account of studies that reveal that suicidal behaviours are positively related with depression as measured by the BDI. A study conducted by Konick and Gutierrez (2005) revealed that depressive symptoms as measured by the BDI, was a direct predictor of suicide ideation in college students. Studies have also utilized the BDI in exploring the relationship between the Five Factor Model and depression (Wolfenstein & Trull, 1997). In South Africa, Peirson and Heuchert (2001) conducted a study on the relationship between mood, namely depression as measured by the BDI and personality. In another study conducted in the South African context the BDI was utilized to measure depression, in an investigation of the relationship between personality and suicide ideation when the influence of depression was factored out of the relationship (Peirson, 2001).

3.6 PROCEDURE

Data collection took place over a period of several weeks because of the sample size required for the present study. A snowball sampling technique was employed in order fulfill the sample size requirement and to broaden the sample in this study. Before the process of data collection is outlined it is important to note the following. Costa and McCrae (1992) reveal that the NEO-PI-R has been used frequently in projects were respondents complete the instrument at home. Beck et al. (1988) state that the BDI is most often self-administered and report that there is no difference in respondents' scores when the BDI is self-administered privately. Osman et al. (1998) also inform about self-administering the PANSI. Given this, participants generally completed the PANSI, BDI and NEO-PI-R during their personal time due to the manner in which data was collected.

Data collection was conducted via one of two variations. The first variation of data collection entailed the researcher obtaining approval from respective lecturers to approach students who could potentially participate in the study. The following information was communicated to these students both verbally and in writing by means of a participation information sheet. The students were given a clear and detailed outline of the aims and purpose of the research and were informed that participation was purely voluntary and that choosing to participate or not to participate would neither disadvantage nor advantage them academically or otherwise. The students were requested to participate in the study by filling in a batch of questionnaires and informed that it could take about 30 minutes to complete the questionnaires, they would fill in the questionnaires during their personal time and the researcher would make arrangements to collect their questionnaires at their convenience. Students were also informed that should they agree to participate they have the right to withdraw from the research at any stage, regardless of whether they agreed to participate initially. The students who chose to participate signed a consent form and were given an envelope which contained a demographic questionnaire and three self-report inventories, the PANSI, BDI and NEO-PI-R. Finally, from these student referrals or potential participants were identified. The students who identified prospective participants were given an envelope or envelopes of the questionnaires together with a participation information sheet and consent form, for the identified individuals and this data was also collected at the scheduled time.

The second variation is similar to the first in every respect, except that the second variation firstly comprised of the researcher identifying and approaching potential participants individually and secondly, there were instances when participants were administered the three self report inventories on a single occasion, individually. Referrals were also obtained from the individuals approached and so forth.

Once all the data was collected, each batch of questionnaires was assigned a participant number in order to facilitate data processing. As mentioned previously, all participants received a participation information sheet and were required to give informed consent of

participation in the study. For a copy of the participation information sheet and consent form please see Appendix A. Copies of the questionnaires can be found in Appendix B.

3.7 ETHICAL CONSIDERATINS

The research proposal for this study was submitted to the Human Research Ethics Committee (Non-Medical) of the University of the Witwatersrand, for the purpose of ethical screening. Ethics clearance was obtained for this study (Protocol number 60308).

This study focused on suicide ideation as this represents the earliest stage of suicide risk. The researcher is aware that suicide is a sensitive subject matter however empirical evidence reveals that inquiring about suicide does not precipitate suicidal behaviour (Kaplan et al., 2000). Nevertheless, the researcher provided participants with information regarding resources that were available to them if they felt distressed or felt that they needed assistance (see Appendix A).

Participants were asked to complete a consent form if they elect to participate in the study (see Consent Form in Appendix A). The participants were also made aware that confidentiality would be preserved. However anonymity was not ensured due to the possibility of the 'face to face' administration of the instruments.

3.8 STATISTICAL ANALYSIS

Descriptive statistics were used to answer research question one. That is, the prevalence rate of suicide ideation of the sample was determined by utilizing the frequencies calculated with regard to the PANSI PI and NI scales respectively. This form of descriptive statistics is the same as those used by unpublished studies that have utilized the PANSI in the South African context (Meehan, 2004; Peirson, 2001; Smith, 2004).

Descriptive statistics in the form of means, standard deviations, maximum and minimum scores were calculated for the scales of the PANSI PI and NI, NEO-PI-R domains, and

the BDI, respectively (see Appendix D). Skewness coefficients were also calculated for the scales of the PANSI PI and NI, NEO-PI-R domains, and the BDI, respectively. That is to assess normality of the data in order to determine whether parametric or non-parametric tests should be utilised (see Appendix E). Analyses in this regard informed the utilisation of spearman's correlations.

Spearman's correlation analysis was employed in order to firstly, answer the second research question, that is, is there a relationship between personality and suicide ideation? Bless and Kathuria (2004) assert that the purpose of correlation analysis is to measure the degree of relationship between two variables and express this through a correlation coefficient. Furthermore this analysis is appropriate as the research question being posed here is merely one of association. Hence, in order to investigate the relationship between personality and suicide ideation, spearman's correlations and associated levels of statistical significance were computed for each of the five domain scores of the NEO-PI-R and the PANSI NI and PI scores, respectively (see Appendix F). The relationship between, depression and suicide ideation as well as depression and personality was examined similarly. Except that spearman's correlations and associated levels of statistical significance were computed for the PANSI NI score, PANSI PI score and the BDI score, respectively (see Appendix G), as well as for the each of the five domain scores of the NEO-PI-R and BDI score, respectively (see Appendix H).

Spearman's partial correlation coefficient, which is widely used (Bless & Kathuria, 2004) was utilized to answer the third research question. These authors state that a partial correlation coefficient will measure the relationship between two variables while controlling the influence of a third variable. Hence, partial correlations and associated level of statistical significance were computed for each of the five domain scores of the NEO-PI-R, and PANSI NI scores and PI scores with the total BDI score. This analysis allows for the resultant correlations between the NEO-PI-R domain scores and the PANSI NI and PI scores respectively, to be independent of the influence of BDI performance (see Appendix I).

CHAPTER 4: RESULTS

4.1 PREVALENCE RATE OF SUICIDE IDEATION

The prevalence rate of suicide ideation was assessed in the sample of participants in two ways. The Positive and Negative Suicide Ideation Inventory (PANSI) scores were used to assess the rate of suicide ideation (Negative ideation) and the degree to which participants were optimistic or hopeful about the future (Positive ideation), respectively.

Figure 4-1 presents a summary of the degree of suicide ideation (PANSI Negative Ideation scores) in the sample. This figure indicates that while 84.34% of the individuals in this study had not recently thought about suicide, 15.66% of the sample had recently thought about killing themselves. However, the degree of suicide ideation was not uniform as less than half (6.02%) of those who had thought about suicide, had done so very rarely. Nonetheless, 9.64% of the sample had experienced frequent recent suicide ideation, that is, they had thought about killing themselves some of the time or a good part of the time.

Figure 4-1: PANSI Negative Ideation

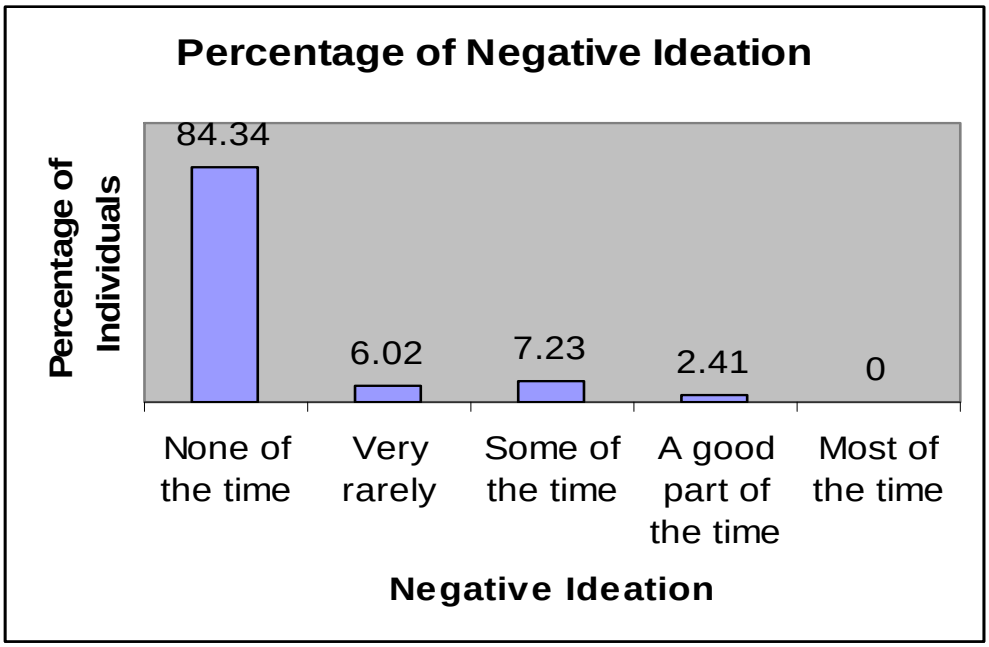
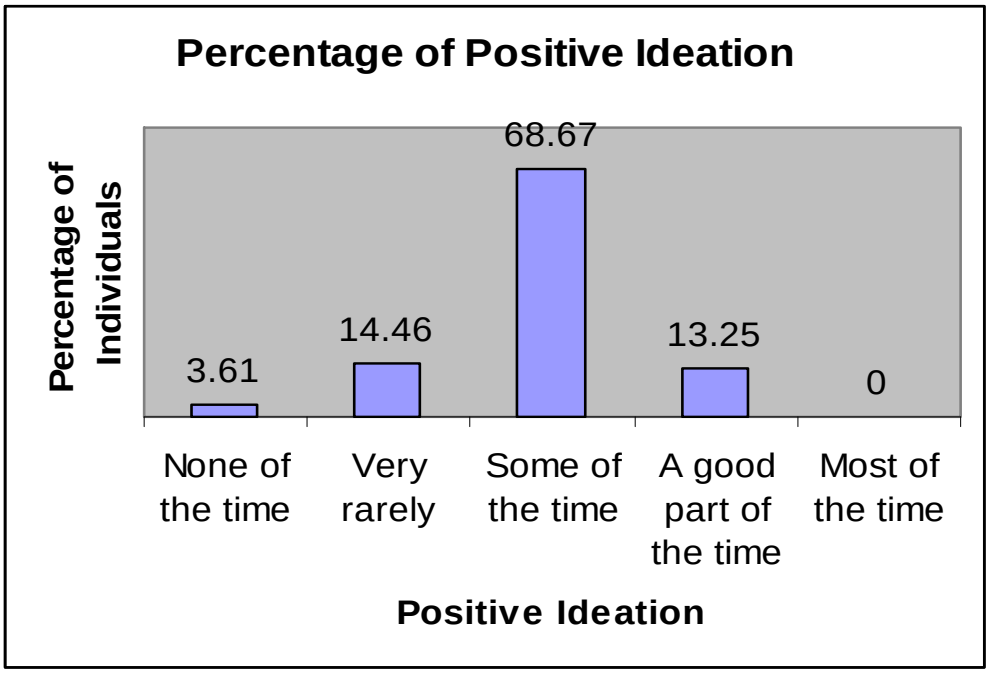


Figure 4-2 presents a summary of the PANSI Positive Ideation scores in the sample. These results indicate that 13.25% of the individuals in the sample felt optimistic about the future a good part of the time, 68.67% felt optimistic some of the time and 14.46% felt optimistic very rarely. Within the sample, 3.61% of the individuals reported not to feel optimistic at any time.

Figure 4-2: PANSI Positive Ideation



4.2 RELATIONSHIP BETWEEN PERSONALITY AND SUICIDE IDEATION

The relationship between personality and suicide ideation was investigated by correlating NEO-PI-R domain scores with PANSI Negative Ideation scores. The relationship between personality and Positive Ideation was also measured by correlating NEO-PI-R domain scores with PANSI Positive Ideation scores. The size of the correlation indicates the levels of association between two variables, and the significance level of correlation indicates the power or strength of the relationship.

Table 4 -1 provides descriptive statistics for the variables: PANSI Negative Ideation (NI), PANSI Positive Ideation (PI), the respective NEO-PI-R domains, that is Neuroticism (N),

Extraversion (E), Openness to experience (O), Agreeableness (A), Conscientiousness (C), and the Beck Depression Inventory (BDI).

Table 4-1: Descriptive Statistics for the PANSI NI, PANSI PI, NEO-PI-R and BDI (N = 83)

	Total Score	**Mean**	**Minimum**	**Maximum**	**SD**
PANSI					
PANSI NI	**5**	1.43	0.87	4.50	0.8
PANSI PI	**5**	3.43	1.83	4.50	0.5
NEO-PI-R DOMAINS					
N: Neuroticism	**192**	97.36	35.00	160.00	23.1
E: Extraversion	**192**	117.21	59.00	173.00	21.0
O: Openness to Experience	**192**	120.67	69.00	174.00	19.6
A: Agreeableness	**192**	118.43	48.00	151.00	18.0
C: Conscientiousness	**192**	116.38	69.00	166.00	22.8
BECK DEPRESSION INVENTORY					
BDI	**63**	11.04	.00	42.00	9.7

Negative Ideation (suicide ideation) and Positive Ideation (protective factor against suicidal behaviour) were significantly correlated with selected NEO-PI-R domains. That is a weak to moderate positive significant correlation between Negative Ideation and Neuroticism ($r = 0.318$, $p = 0.003$), and a weak to moderate inverse significant correlation between Negative Ideation and Extraversion ($r = -0311$, $p = 0.004$), and Conscientiousness ($r = -0.384$, $p = 0.000$), were respectively found. A weak to moderate inverse significant correlation between Positive Ideation and Neuroticism ($r = -0.347$, $p = 0.001$), a moderate positive correlation between Positive Ideation and Extraversion ($r = 0.504$, $p < .000$), and a weak to moderate positive correlation between Positive Ideation and Conscientiousness ($r = 0.382$, $p = 0.000$) were respectively found. Table 4-2 presents the spearman's correlations and relevant probability values for the association between the PANSI NI, PANSI PI, and the NEO-PI-R.

Analysis of the correlations between the personality variables and suicide ideation suggest that suicide ideation is related to high Neuroticism scores, low Extraversion scores and low Conscientiousness scores. There also appears to be a relationship between Positive Ideation and low Neuroticism scores, high Extraversion scores and high Conscientiousness scores.

Table 4-2: Spearman's Correlations between the PANSI NI, PANSI PI, and the NEO-PI-R (N = 83)

	PANSI NI		PANSI PI	
	r		r	
NEO-PI-R N: Neuroticism	**0.318**	**0.003***	**-0.347**	**0.001***
NEO-PI-R E: Extraversion	**-0.311**	**0.004***	**0.504**	**<.000***
NEO-PI-R O: Openness to experience	-0.077	0.483	0.157	0.155
NEO-PI-R A: Agreeableness	-0.103	0.350	0.210	0.056
NEO-PI-R C: Conscientiousness	**-0.384**	**0.000***	**0.382**	**0.000***

(* indicates p< .05)

4.3 INFLUENCE OF DEPRESSION ON THE RELATIONSHIP BETWEEN PERSONALITY AND SUICIDE IDEATION

The impact of depression on the relationship between personality and suicide ideation was determined. The degree of association between BDI scores and PANSI scores, as well as BDI scores and NEO-PI-R scores were independently calculated. Spearman's partial correlation between the PANSI NI, PANSI PI and NEO-PI-R were performed, with the BDI partialled out. Partial correlations enabled the impact of depression to be removed from the relationship between the NEO-PI-R domains and the PANSI NI and PANSI PI respectively. Hence the impact of depression was factored out of the relationship between personality and suicide ideation.

Scores on the BDI correlated significantly with both the Negative Ideation scores (r = 0.611, p <. 000) and the Positive Ideation scores (r = -0.458, p <.000). These results indicate a significant correlation between BDI scores and Negative Ideation scores, suggesting a strong, direct relationship between depressed mood and suicide (negative) ideation. BDI scores also showed a significant inverse relationship with Positive ideation scores. Table 4-3 details the correlations and relevant probability values for the association between the PANSI NI, PANSI PI and the BDI. BDI scores were also significantly correlated with the NEO-PI-R domain scores of Neuroticism (r = 0.574, p <. 000), Extraversion (r = -0.397, p = 0.000) and Conscientiousness (r = -0.474, p <.000). Analysis of the correlations indicate a moderate positive correlation between depressed mood and Neuroticism, and a weak to moderate inverse correlation between depressed mood and Extraversion and Conscientiousness. The results of this analysis are also presented in Table 4-3.

Table 4-3: Spearman's Correlations between the BDI and the PANSI NI, PANSI PI, and NEO-PI-R (N = 83)

	BDI	
	r	
PANSI NI	**0.611**	**<.000***
PANSI PI	**-0.458**	**<.000 ***
NEO-PI-R N: Neuroticism	**0.574**	**<.000***
NEO-PI-R E: Extraversion	**-0.397**	**0.000***
NEO-PI-R O: Openness to experience	0.006	0.951
NEO-PI-R A: Agreeableness	-0.120	0.276
NEO-PI-R C: Conscientiousness	**-0.474**	**<.000***

(* indicates p< .05)

Table 4-4 summarizes the spearman's partial correlation between Negative Ideation, Positive Ideation and the NEO-PI-R, with the BDI partialled out. Negative Ideation was not significantly correlated with any of the NEO-PI-R domains independent of the effect of the BDI. Correlations of Positive Ideation and the NEO-PI-R domains, independent of the effect of the BDI, were only significant for Extraversion (r = 0.395, p = 0.000).

Examination of the correlations suggests that there is a relationship between depression and suicide (negative) ideation, as well as depression and personality. However when the effects of depression have been factored out of the relationship between personality and suicide ideation, suicide (negative) ideation is not significantly related to the personality variables. An inverse relationship appears to exist between positive ideation and depression. When the effects of depression are factored out, Positive Ideation is only significantly related to high Extraversion.

Table 4-4: Spearman's Partial Correlation between the PANSI PI, PANSI NI and the NEO-PI-R, with the BDI Partialled out (N = 83)

	PANSI PI		PANSI NI	
	P	r	P	r
NEO-PI-R N: Neuroticism	-0.116	0.299	-0.050	0.650
NEO-PI-R E: Extraversion	**0.395**	**0.000***	-0.094	0.396
NEO-PI-R O: Openness to experience	0.180	0.104	-0.103	0.353
NEO-PI-R A: Agreeableness	0.175	0.114	-0.038	0.733
NEO-PI-R C: Conscientiousness	0.210	0.057	-0.136	0.222

(* indicates p< .05)

CHAPTER 5: DISCUSSION

The central aim of this quantitative study was to investigate whether a relationship exists between personality and suicide ideation and to factor out the impact of depression on this relationship in a sample of young adults. This study determined which of the five domains of the Five Factor Model of Personality were significantly related to suicide ideation. Following this, the association between depression and suicide ideation and depression and personality was determined. Then, the impact of depression on the possible relationship between personality and suicide ideation was considered as a potential confounder and controlled for in the assessment of this relationship. This study also assessed the prevalence rate of suicide ideation among young adults.

Given that suicidal behaviour among young adults is a serious problem and that suicide ideation has been implicated as preceding attempted and completed suicide, the present study focused on suicide ideation in young adults. The prevalence rate of suicide ideation was determined as data in this regard within the South Africa context is not well documented. Furthermore it addressed some of the limitations with regard to research on the relationship between personality traits and suicidal behaviour, namely, the gap in utilising a comprehensive personality taxonomy such as the Five Factor Model of Personality, considering whether personality traits provide protection against suicidal behaviour, and controlling for the influence of depression on the relationship between personality and suicidal behaviour. The present study sought to determine which of the five domains of the Five Factor Model of Personality was significantly related to suicide ideation among young adults. This investigation included determining whether personality was a protective factor against suicide ideation. The impact of depression on the relationship between personality and suicide ideation was considered as a potential confounder and controlled for in the assessment of this relationship.

The discussion section will commence with reviewing the prevalence rate of suicide ideation in the given sample. The association between personality and suicide ideation as well as personality and positive ideation (protective factor against suicidal behaviour)

will then be examined. Finally the impact of depression on the relationship between personality and suicide ideation will be reviewed.

5.1 PREVALENCE RATE OF SUICIDE IDEATION

Findings on the prevalence rate of suicide ideation in the sample of 83 students (63 females and 20 males) aged from 22 to 28 years, from the University of the Witwatersrand, revealed that 15.66% of the sample had recently thought about killing themselves. This finding implies that one in about six students had thought about killing themselves. However, the degree of suicide ideation was not uniform, 6.02% of those who had thought about suicide, had done so very rarely, nonetheless, 9.64% of the sample had experienced frequent recent suicidal ideation, which is, thought about killing themselves some of the time or a good part of the time. In considering that about 5.5% of suicide ideators eventually commit suicide (Scocco et al., 2000) at least one of the individuals in the present study who had thought about killing themselves could be at risk of completing suicide.

Compared to the findings of the two studies that assessed the prevalence rate of suicide ideation among college students in the United States (Brener et al., 1999; Kisch et al., 2005) reviewed earlier, the prevalence rate of suicide ideation (15.66%) in the present study is higher than that of 10% (Brener et al., 1999) and 9.7% (Kisch et al., 2005). However the difference in findings between those studies and present study could possibly be due to a number of factors. A couple of these factors may be related to the larger sample sizes and differences of the age group of the participants of the USA studies. The study conducted by Brener et al. (1999) consisted of a sample of 4,838 students aged 18 years and older. However even though that study indicated that 63% of the samples were 18 to 24 years old, there was no indication of the age range of 37% of that sample who were older than 24 years. The study conducted Kisch et al. (2005) consisted of 15,977 students, sixty-two percent of the sample were under 22 years of age. Even though it was reported that most of the samples were under the age of 22 years, there was no indication of the age range of that sample. Nevertheless, the sample of the

present study consisted of 83 students aged from 22 years to 28 years (mean age = 23.65, standard deviation = 2.13). Hence the findings from the larger sample sizes of the respective American studies could be more reflective of those student populations as compared the South African student population. Furthermore the majority of the age group of participants in the American studies were under the age of 22 years and those findings maybe more reflective of the prevalence rate of suicide ideation among that age group. Differences with regard to the instruments that were utilized to measure suicide ideation and time frame within which the assessment was conducted could also account for the difference in the findings. For example Brener et al. (1999) assessed the prevalence rate of suicide ideation 12 months preceding the survey which was conducted in 1995. Kisch et al. (2005) assessment was conducted during the academic year of 1999 to 2000. In the present study, the prevalence rate of suicide ideation referred to a two week period which included the day of assessment.

Compared to the USA studies referred to above, there is no reliable published data on the prevalence rate of suicide ideation among students at South African universities. As such, strict comparison in this regard is also not possible. For example a published study assessing the history of suicidal thought in a sample of 89 (39 males and 50 females) first year medical students at the University of Transkei found that 25.8% of that sample reported having considered committing suicide and 51% reported a history of feeling life was not worth living (Mayekiso & Ngcaba, 2000). Mayekiso and Ngcaba (2000) did not expound on the questionnaire that was utilized to obtain data pertaining to suicidal thought, nor on the samples' demographic information and the year that the study was conducted. Hence gaining reliable data on the prevalence rate of suicide ideation among students at South African universities is imperative. In addition this data could be used to inform intervention strategies as suicide ideation has been implicated as being the best predictor of eventually engaging in more serious suicidal behaviour (Ahrens et al., 2000; American Psychological Association, 2004; Cox et al., 2004; Kaplan & Sadock, 1995; Linden et al., 2003, Mann, 2002; Motto, 1965) and empirical evidence has indicated that up to 5.5% of suicide ideators eventually commit suicide (Scocco et al., 2000).

5.2 RELATIONSHIP BETWEEN PERSONALITY AND SUICIDE IDEATION

Subsequent to determining the prevalence rate of suicide ideation, this study sought to establish whether there was an association between personality and suicide ideation. Given that there is accumulating empirical evidence on personality traits as correlates of suicide ideation and that certain personality traits may increase individual vulnerability to suicidality. For example higher scores on Neuroticism has been implicated as one of the most prominent correlates of or predictor of suicide ideation and to a lesser extent lower Extraversion has been found to be another predictor of suicide ideation (Brezo et al., 2006b). Studies investigating suicide ideation within the Five Factor Model of Personality have found that suicide ideation was further predicted by low Agreeableness (Kerby, 2003) as well as low Conscientiousness (Kerby, 2003; Velting, 1999a).

In view of the above, the Revised NEO Personality Inventory (NEO-PI-R) domain scores were correlated with the Positive and Negative Suicide Ideation Inventory. The Positive and Negative Suicide Ideation Inventory, Negative Ideation (PANSI-NI) subscale scores were significantly correlated with the Neuroticism, Extraversion and Conscientiousness domains of the NEO-PI-R, and not significantly correlated with the Openness to Experience and Agreeableness domains. Analysis of the correlations between the domains of the NEO-PI-R and the PANSI-NI indicates that suicide ideation is related to high Neuroticism scores, low Extraversion scores and low Conscientiousness scores.

NEO-PI-R domain scores were also correlated with the Positive and Negative Suicide Ideation Inventory, Positive Ideation (PANSI-PI) subscale scores. Findings in this regard revealed that the PANSI-PI was significantly correlated with the Neuroticism, Extraversion and Conscientiousness domains of the NEO-PI-R and not significantly correlated with the Openness to Experience and Agreeableness domains. Analysis of the correlations between the domains of the NEO-PI-R and the PANS-PI indicates that Positive Ideation, a protective factor against suicidal behaviour, was related to low Neuroticism scores, high Extraversion scores and high Conscientiousness scores, respectively. These findings are discussed in more detail below.

5.2.1 Neuroticism and Suicide Ideation

High Neuroticism was significantly correlated with Negative Ideation (suicide ideation) ($r = 0.318$, $p = 0.003$). This finding is consistent with the findings of previous studies that showed that individuals high in Neuroticism were more likely to present with a higher degree of suicide ideation (Fergusson et al., 2003; Fergusson et al., 2000; Irfani, 1978; Kerby, 2003; Lester, 1987; Lester & Francis, 1993; Mehryar, Hekmat, & Khajavi, 1977; Velting, 1999a). The finding of the present study reaffirms that Neuroticism is related to suicide ideation and underscores the importance of understanding the role that personality plays in suicidal behaviour. Furthermore, as discussed earlier, the PANSI and the NEO-PI-R have been found to be valid and reliable measures of their constructs. Hence the consistency of this finding across studies supports the utility of these measures within the South African context. The significance of this finding within the South African context is that elevated Neuroticism could be useful in identifying risk for suicidal behaviours in young adults, the age group among whom suicide is a serious problem.

It has been previously suggested that negativistic, neurotic, hostile as well as impulsive personality features cluster in suicidal individuals (Engstrom et al., 1997). It has also been previously proposed that adolescents who are anxious, neurotic, aggressive, angry and impulsive, are more likely to engage in suicidal behaviours (Beautrias, 2000). The personality characteristics mentioned (Beautrias, 2000; Engstrom et al., 1997) are features of high Neuroticism and in line with the present findings that high Neuroticism is related to suicide ideation.

Specifically, elevated Neuroticism scale scores characterise individuals who are susceptible to psychological distress, which in turn interferes with an individual's adaptation and results in coping more poorly than others with stress (Costa & McCrae, 1992). Accordingly, empirical evidence indicates that high scores on Neuroticism are consistently associated with ineffective and passive coping mechanisms, such as avoidant and emotion focused coping, which represent the least effective coping mechanisms

(Watson & Hubbard, 1996). In other words the problem solving style of individuals who score high on Neuroticism tend to be characterized by avoidance and emotion focused, which tend to be ineffective. This is particularly significant as coping styles have been implicated as being a mediator between stressful situations and negative outcomes (Lazarus & Folkman, 1984) such as engaging in suicidal behaviour (Josepho & Plutchik, 1994). Hence it is proposed that elevated Neuroticism represents an individuals risk for suicidal behaviours as these individuals may resort to engaging in suicidal behaviours as a result of coping ineffectively with stress.

Furthermore a prediction model of suicide risk proposes that problem solving deficits could increase the severity of hopelessness and depression, which then in turn increases suicidal risk (D'Zurilla, Chang, Nottingham, & Faccini, 1998). High Neuroticism denotes an enduring diathesis for negative emotionality and a variety of distress disorders, in particular depression (Costa & McCrae, 1992; Cox et al., 2004; Duberstein et al., 2000), which has been consistently associated with suicidality (American Psychiatric Association, 2000; Kuo et al., 2001; Mann, 2002; Sadock & Sadock, 2003; Schlebusch, 2005a, 2005b; Scocco et al, 2000; Statham et al., 1998; Vuorliehto et al., 2006). It could be conceptualised that the interaction of all of these variables may increase an individual's susceptibility to suicide ideation and possibly eventually engaging in more serious suicidal acts.

An inverse significant correlation between Positive Ideation, a protective factor against suicidal behaviour, and Neuroticism ($r = -0.347$, $p = 0.001$) was found. Analysis of this correlation indicates that as Neuroticism decreases, Positive Ideation increases and as Neuroticism increases, Positive Ideation decreases. Hence Neuroticism could have an effect on Positive Ideation or Positive Ideation could have an affect on Neuroticism.

Low Neuroticism characterises individual's who are emotionally stabile (Costa & McCrae, 1992; Digman, 1990; Larsen & Buss, 2005; Ryder et al., 2005; Watson & Hubbard, 1996) and tend to be calm, secure, relaxed, even-tempered, and deal with stressful experiences effectively (Costa & McCrae, 1992; Ryder et al., 2005). Hence

participants in this study who were emotionally stabile and tend to be calm, secure, relaxed, even-tempered, and deal with stressful experiences effectively, reported being more optimistic and hopeful about the future, which acts as a protective factor against suicide ideation. This finding underscores Costa and McCrae (1992) report that individuals who score low on Neuroticism tend to be confident and optimistic. More importantly is that low Neuroticism may serve as a protective factor against suicide ideation, which in turn could protect against eventually engaging in more serious suicidal acts. This finding has the potential to inform prevention and intervention strategies aimed at addressing suicide ideation. Factors that contribute to emotional instability and insecurity could be targeted. Furthermore these strategies could address techniques that assist, in being calmer, more relaxed, even tempered and with coping more effectively with stressful experiences.

At this point it must be noted that analysis of the correlation between Neuroticism and Positive Ideation also indicated that Positive Ideation could have an affect on Neuroticism. However, to date there is no published study that has investigated the association between protective factors against suicide ideation as measured by the PANSI and personality as measured by the NEO-PI-R. Therefore, this finding can not be compared with other findings. However this finding could imply that being positive or hopeful about the future influences personality presentation. The finding on the correlation between Neuroticism and Positive Ideation is significant as this finding has added to the area of research on the relationship between personality and suicide ideation by providing an empirical basis for discussion and investigation regarding personality as a protective factor against suicidal behaviour.

5.2.2 Extraversion and Suicide Ideation

Negative Ideation was negatively correlated with Extraversion ($r = -0311$, $p = 0.004$). Analysis of this correlation suggests that low Extraversion is associated with increased suicidal thinking. This finding is in line with extensive empirical evidence that indicates that Extraversion correlates negatively with suicide ideation (Brezo et al., 2006b). For

example low Extraversion has been related to increased suicide ideation in clinical samples of individuals with depression (Brezo et al., 2006b; Farmer et al., 2002; Janowsky et al., 2002) as well as in non-clinical samples of university students (Brezo et al., 2006a; Irfani, 1978; Kerby, 2003; Lester, 1987). Findings from the study conducted by Ifrani (1978) suggests that suicide ideation is correlated to low Extraversion despite differences in age, that is between high school and university students and despite cultural background, namely between the cultural groups classified as American, Iranian and Turkish, respectively. Furthermore, since the PANSI and the NEO-PI-R have been found to be valid and reliable measures of their constructs, the consistency of this finding across studies supports the utility of these measures within the South African context.

Specifically, low Extraversion scale scores characterise individuals who are introverted and socially withdrawn (Costa & McCrae, 1992; Larsen & Buss, 2005; Ryder et al., 2005) and show evidence of poor interpersonal functioning (Duberstein et al., 2000). In the present study increased suicide ideation was linked with participants in this study who were introverted, socially withdrawn and experience poor interpersonal functioning. The finding of the present study are consonant with previous findings that have variously indicated that the engagement in suicidal behaviour tends to be associated with introversion and social withdrawal (Beautrias, 2000; Duberstein et al., 2000; Farmer et al., 2002; Irfani, 1978; Janowsky et al., 2002; Lester, 1987).

Duberstein et al. (2000) point out that low Extraversion has been empirically associated with correlates of suicidal behaviour such as poor social support and the use of socially avoidant problem-solving strategies. As such it is postulated that individuals who are low in Extraversion may tend to engage in suicidal behaviour instead of attempting to recruit and affectively benefit from the help of others, friendships, or family relations. The findings of the current study underscore this as the findings suggests that introverted and socially withdrawn individuals who struggle with interpersonal relationships may be more prone to thoughts about killing themselves. In contrast to this, extraverted individuals, even in the midst of a depressive episode, were found to be less likely to engage in suicidal behaviour as a result of being more likely to recruit and affectively

benefit from interpersonal relations, possibly because of better social skills (Duberstein et al., 2000).

Positive Ideation, a protective factor against suicidal behaviour was significantly correlated with high Extraversion ($r = 0.504$, $p < .000$). High Extraversion characterises individuals who are sociable, outgoing, assertive, and tend to be optimistic (Costa & McCrae, 1992; Larsen & Buss, 2005; Ryder et al., 2005). Hence participants in this study who were sociable, outgoing, assertive, and tend to be more optimistic reported being more optimistic and hopeful about the future, which acts as a protective factor against suicide ideation. This finding further supports that extraverted individuals tend to be more optimistic (Costa & McCrae, 1992; Larsen & Buss, 2005; Ryder et al., 2005). In addition, the relationship between high Extraversion and being optimistic and hopeful about the future, suggests that high Extraversion in young adults is related to being a protective factor against suicidal thought. Given that suicide ideation precedes and is a predictor of eventually engaging in suicidal acts. It is proposed that elevated Extraversions' association with Positive Ideation, a protective factor against suicidal thought, could imply that this association may also acts as a protective factor against eventually engaging in suicidal acts.

Yet again it must be noted that to date there is no published study that has investigated the association between protective factors against suicide ideation as measured by the PANSI and personality as measured by the NEO-PI-R. Hence the finding on the relationship between high Extraversion and Positive Ideation demonstrates the utility of considering personality as a possible protective factor against suicide ideation. This finding has added to the area of research on the relationship between personality and suicide ideation by providing an empirical basis for discussion regarding personality as a protective factor against suicidal behaviour. In doing so, it has provided a basis for future research.

5.2.3 Openness to Experience and Suicide Ideation

The correlation between Openness to Experience and Negative Ideation was non significant. This finding suggests that there is no relationship between Openness to Experience and suicide ideation. Specifically, Openness to Experience as conceptualised within the Five Factor Model describes the degree of an individual's curiosity about inner experiences and external world, and the willingness consider novel ideas and unconventional values (Costa & McCrae, 1992; Larsen & Buss, 2005; Ryder et al., 2005). Thus this investigation suggests that these personality features are not related to suicide ideation.

A study conducted by Duberstein et al. (1994) which investigated age differences in personality of suicide completers, as conceptualised within the Five Factor Model, found that low Openness to Experience was related to completed suicide among older adults. Duberstein et al. (1994) finding has several implications, to the area of research on the association between personality and suicidal behaviour as well as to the present study. Firstly, that finding could indicate that the association between personality and suicidal behaviours differs across the life course and indicates the need for further investigation. However Duberstein et al. (2000) explain that at earlier phases in the life course low scores on Openness to Experience may be adaptive as these individuals are more likely to experience emotions less intensely and as a consequence of affective muting, these individuals do not feel or report feeling suicidal. However, low Openness to Experience could increase an individuals risk for completed suicide later on in life (Duberstein et al., 2000). Conversely this could indicate that selected personality traits may be associated with different forms of suicidal behaviour, namely suicide ideation, attempted suicide and completed suicide. Hence the non significant finding on the relationship between Openness and suicide ideation does not necessarily indicate that this personality trait is not related to other forms of suicidal behaviour.

The finding of this study is consistent with findings of the dearth of published studies (Duberstein et al., 2000; Kerby, 2003; Useda et al., 2004; Velting 1999a) that have

investigated the association between personality traits that constitute the Five Factor Model of Personality and suicide ideation. The findings of those studies also did not show an association between Openness to Experience and suicide ideation. The consistency of this finding across studies suggests that Openness to Experience is not related to suicide ideation. Furthermore, given that the PANSI and the NEO-PI-R have been found to be valid and reliable measures of their constructs, it is proposed that the consistency of this finding across studies supports the utility of these measures within the South African context.

No relationship between Openness to Experience and Positive Ideation was found. To date there is a paucity of published studies on the relationship between Openness to Experience and Positive Ideation or other measures that assess protective factors against suicidal behaviour. Hence it is not possible to compare current findings with previous research findings. However the finding of this study suggests that Openness to Experience in South African young adult students is not associated with Positive Ideation, a protective factor against suicide ideation. Investigating whether personality could act as a protective factor against suicidal behaviour has provided a basis for future research.

5.2.4 Agreeableness and Suicide Ideation

The correlation between Agreeableness and Negative Ideation was non significant. The Agreeableness domain is primarily a dimension of interpersonal tendencies and describes the degree of an individual's capacity for sympathy, trust, cooperation and altruism. Within this domain being compassionate, trusting and cooperative is contrasted with being cynical and antagonistic. For example an agreeable individual is characterised by being altruistic, sympathetic, and cooperative, and is eager to help others and believes others will be helpful in return. In contrast the antagonistic or disagreeable individual is sceptical of the other persons intentions, is egocentric and competitive (Costa & McCrae, 1992; Larsen & Buss, 2005; Ryder et al., 2005). Thus this investigation suggests that these personality features are not related to suicide ideation in South African young adult students.

The above finding is discrepant with the finding of a study that showed that low Agreeableness was correlated with suicide ideation in a sample of undergraduate students (Kerby, 2003). A discussion about this association (Kerby, 2003) suggested that the traits that characterise individuals who score low on Agreeableness hinder these individuals from making new friends at the beginning of college. Hence given this at a time when these individuals have recently left home and should make new friends in a new environment. It is suggested that the lack of close friends to confide in may increase the risk of suicide ideation (Kerby, 2003). This finding could be inconsistent with the finding of the present study given that in the present study, the sample was generally comprised of postgraduate students. Hence these participants may have worked through the developmental task described by Kerby (2003). This could then imply that this personality trait may relate differently to suicide ideation among undergraduates and postgraduates. However this inconsistent finding could also be as a result of differences related to sample size. As the study conducted by Kerby (2003) comprised of a sample of 474 participants as compared to the present study's sample which comprised of 83 participants. Nevertheless the finding of the present study supports the findings of previous studies (Duberstein et al., 2000; Velting, 1999a) which showed a non significant correlation between Agreeableness and suicide ideation. It should be noted that in the study conducted by Duberstein et al. (2000) and Velting (1999a), the samples comprised of 81 depressed patients and 185 undergraduate participants, respectively. Hence the inconsistent finding between the study conducted by Kerby (2003) and the studies conducted by Duberstein et al. (2000) and Velting (1999a) could also be as a result of the difference related to sample size.

No relationship between Agreeableness and Positive Ideation was found. To date there is no published studies on the relationship between Agreeableness and Positive Ideation or studies investigating Agreeableness as a protective factor against suicidal behaviour. Hence it is not possible to compare current findings with previous research findings. However the finding of this study suggests that Agreeableness in South African young adult students is not associated with Positive Ideation, a protective factor against suicide

ideation. Investigating whether personality could act as a protective factor against suicidal behaviour has provided a basis for future research.

5.2.5 Conscientiousness and Suicide Ideation

A weak to moderate inverse significant correlation between Negative Ideation and Conscientiousness ($r = -0.384$, $p = 0.000$) was found. This finding is consistent with the findings of a dearth of published studies that have sought to establish whether there is an association between Conscientiousness and suicide ideation (Kerby, 2003; Pienaar et al., 2007; Velting, 1999a). That is, in samples of university students (Kerby, 2003; Velting, 1999a) and uniformed police members of the South African Police Service (Piennaar et al., 2007).

Studies investigating personality traits as correlates of suicidal behaviour have generally considered suicidal behaviours within a three dimensional trait model (Psychoticism, Extraversion and Neuroticism), based on Eysenck's theory and operationalised by the Eysenck Personality Questionnaire. Nevertheless, Conscientiousness in the Big Five system reflects aspects of and is related to the trait of psychoticism from Eysenck's personality system (Digman, 1990; Watson & Hubbard, 1996). Related to this is a number of studies have revealed a significant relationship between the trait of psychoticism from Eysenck's personality system and suicidal behaviour, including suicide ideation (Brezo et al., 2006b; Piennaar et al., 2007). As such it is postulated that since Conscientiousness in the Big Five system reflects aspects of psychoticism from Eysenck's personality system, on theoretical grounds, Conscientiousness should also be related to suicide ideation. The finding of the present study support this postulation and demonstrates the utility of investigating suicide ideation as measured by the PANSI, within the theoretical framework provided by the Five Factor Model of Personality.

According to Costa and McCrae's (1992) personality features of individual's who score low on Conscientiousness, it can be suggested that in the present study's sample, suicide ideation could be predicted in individual who, have a lower opinion of their abilities, low self esteem or feel inept; are unreliable and aimless; procrastinate, give up easily and

generally lack motivation and the ability to initiate and complete tasks; often act without considering the consequences; and are more hedonistic. These personality features have been previously correlated with suicide ideation and other suicidal behaviours. For example, several studies have found that young people who think about or attempt suicide have low levels of self-esteem or feelings of low self-worth (McGee, Williams, & Nada-Raja, 2001; Overholser, Adams, Lehnert, & Brinkman, 1995), being unreliable, aimless, and hedonistic has been associated with suicide completers between the age of 35 and 50 years (Duberstein et al., 1994), while procrastinating, giving up easily and generally lacking the motivation and the ability to initiate and complete tasks, has been implicated as significantly predicting suicidal ideation (Velting, 1999a). The findings of the present study are therefore consistent with these studies.

Notwithstanding the empirical evidence outlined above, the present study acknowledges that when investigating the association between low Conscientiousness and heightened suicide ideation, consideration should be given to factors, such as depression, that may possibly influence the association between low Conscientiousness scores and heightened suicide ideation. For example, a study that utilized the Five-Factor Inventory in characterising patients with major depressive disorder found that depressed outpatients NEO five – factor profile was characterised by low Conscientiousness scale scores (Petersen et al., 2001). In addition, other studies that have investigated the Five Factor Model personality traits in depressed individuals have found that these individuals scored lower on Conscientiousness as compared to the Conscientiousness scores of healthy control samples (Ryder et al., 2005). Consonant with this is that lower levels of Conscientiousness have been associated with higher levels of hopelessness, which is a core feature of depression (Velting, 1999b). On the other hand hopelessness has also been found to be a significant predictor in regression models of suicide ideation In addition there is extensive empirical evidence on the association between depression and suicide ideation. Hence if low Conscientiousness is associated with depression and if depression is associated with or predicts suicide ideation, then low Conscientiousness may be related suicide ideation. Nevertheless it must be noted that the relationship

between Conscientiousness and suicide ideation is strong, indicating that this personality trait among South African young adult students is associated with suicide ideation.

Positive Ideation, a protective factor against suicidal behaviour was significantly correlated with high Conscientiousness ($r = 0.382$, $p = 0.000$). This finding suggests that participants in this study who are purposeful, strong-willed, motivated, well organised and determined reported being more optimistic and hopeful about the future, which is a protective factor against suicide ideation. This implies that enhanced conscientiousness and heightened optimism act as a protective factor against suicidal thoughts. This finding underscores the association between high Conscientiousness and optimism (Marshall, Wortman, Vickers, Kusulas, & Hervig, 1994) and positive thinking, respectively (Watson & Hubbard, 1996). Furthermore coping research has implicated higher Conscientiousness scores as being the strongest predictor of problem solving and positive reappraisal, as well as being a strong predictor of support seeking, which contributes to Conscientiousness being an excellent predictor of coping (Watson & Hubbard, 1996; Vollrath & Torgersen, 2000). Given that coping has been implicated as a mediator between stressful situations and negative outcomes (Lazarus & Folkman, 1984) such as engaging in suicidal behaviour (Josepho & Plutchik, 1994). It is proposed that the association between higher Conscientiousness and optimism, self reported happiness, positive thinking and effective coping contribute to elevated Conscientiousness being a protective factor against engaging in suicidal behaviour.

5.2.6 Personality Trait Profile Associated with Suicide Ideation

The findings reviewed above suggest that the personality trait profile related to suicide ideation is characterised by high Neuroticism scores, low Extraversion scores and low Conscientiousness scores. In effect the salient qualities of the profile associated with elevated suicide ideation is characterised by frequently experiencing negative affect, coping ineffectively with stress, being introverted, having an independent nature and experiencing difficulty with completing tasks. This implies that these personality traits,

which characterise selected patterns of feeling, thinking and behaving, engender a vulnerability to suicide ideation and possibly eventually engaging in suicidal acts.

The findings reviewed on the relationship between personality traits and Positive Ideation suggest that the personality trait profile related to protective factors against suicidal behaviours is characterised by low Neuroticism scores, high Extraversion scores and high Conscientiousness scores. This profile implies that being emotionally stable, coping effectively with stress, being extraverted, and being efficient and determined is related to being optimistic and hopeful about the future. This in turn acts as a protective factor against suicidal thought and possibly eventually engaging in more serious suicidal behaviour.

The findings in the above sections suggests that a number of factors such as emotional instability, ineffective coping styles, lower levels of social support, and difficulty completing a task as characterised by high scores on Neuroticism, low Extraversion, and low Conscientious, may increase individual vulnerability to suicidality. Further, emotional stability, effective coping styles, social support, and being determined, as characterised by lower Neuroticism, high Extraversion, and high Conscientious, may mediate in engaging in suicidal behaviours. A literature review conducted for the purpose of the present study found that to date no studies have reported on a personality trait profile related to, suicide ideation or as a protective factor against suicide ideation. Hence this study has added to the area of research on the relationship between personality and suicide ideation by providing an empirical basis for discussion regarding a personality trait profile related to suicide ideation and as being a protective factor against suicide ideation. In doing so, it has provided the basis for future research.

5.3 INFLUENCE OF DEPRESSION ON THE RELATIONSHIP BETWEEN PERSONALITY AND SUICIDE IDEATION

Earlier it was acknowledged that, in research of this design it is not possible to determine the direction of causality between the variables of personality and suicide ideation. In addition, there is the potential of a third confounding variable producing a variation in both suicide ideation and personality. For the purpose of this study, depression was considered as a possible third confounding variable. A literature review revealed there is extensive empirical evidence on the association between depression and suicide ideation (Ahrens et al., 2000; American Psychiatric Association, 2000; Comer, 1995; Kaplin & Sadock, 1998; Kisch et al., 2005; Sadock & Sadock, 2003; Schlebusch, 2005a, 2005b; Scocco et al., 2000; Thompson et al., 2005; Vuorliehto et al., 2006; Weber et al., 1997; Zhang & Jin, 1996). There is also empirical evidence on the relationship between depression and personality. Findings in this regard show a significant relationship between personality factors and depression (Akiskal et al., 1983; Clark et al., 1994; Enns & Cox, 1997; Farmer & Nelson-Grapy, 1990; Farmer et al., 2002; Hirschfeld et al., 1983; Klein et al., 1993; Peirson & Heuchert, 2001). Since the present study aims to determine the nature of the relationship between personality and suicide ideation, depression was considered as being a potentially significant confounding variable, given depression's association with both the variables of suicide ideation and personality. Hence in order to determine the degree to which depression could be responsible for the obtained relationship between suicide ideation and personality, the possible influence of depression on the relationship was controlled and the magnitude of the remaining relationship between personality and suicide ideation was determined. It is noteworthy to point out that earlier it was shown that the PANSI, NEO-PI-R and BDI were found to be valid and reliable measures of their constructs. As such depression could be factored out of the relationship between personality and suicide ideation.

5.3.1 Depression and Suicide Ideation

Findings showed a significant correlation between BDI scores and higher Negative Ideation scores (r = 0.611, p <. 000). This indicates a significant positive association between depressed mood and suicide ideation. The present finding supports the empirical evidence mentioned above on the association between depression and suicide ideation. This result is also consistent with the findings of a National College Health Assessment survey that measured depression and suicide ideation among 15, 977 college students in the USA (Kisch et al., 2005). Findings indicated that of those students who reported suicide ideation, depressive symptoms were almost always present.

The present study also found that BDI scores showed a significant inverse relationship with Positive Ideation scores (r = -0.458, p <.000). This suggests that participants who were positive about the future were more likely to present with the absence of depressed mood. A literature review revealed that to date, a study conducted by Peirson (2001) is the only previous study that has investigated the relationship between depression, as measured by the BDI and protective or 'buffering' factors, as measured by the PANSI Positive Ideation scale. The findings in this regard also revealed that those participants who reported being more positive about the future, presented with an absence of depressed mood (Peirson, 2001).

5.3.2 Depression and Personality

Findings revealed that BDI scores also correlated significantly with the NEO-PI-R domains of Neuroticism (r = 0.574, p <. 000), Extraversion (r = -0.397, p = 0.000) and Conscientiousness (r = -0.474, p <.000). This indicates a moderate positive correlation between depressed mood and Neuroticism, and a weak to moderate inverse correlation between depressed mood and Extraversion and Conscientiousness, respectively. Suggesting that depressed mood is associated with high Neuroticism, low Extraversion and low Conscientiousness. This result supports the extensive empirical evidence mentioned above on the association between depression and personality. In particular,

there are consistent results between a similar study conducted by Peirson (2001) and the present study, in that, BDI scores were also significantly correlated with high Neuroticism, low Extraversion and low Conscientiousness.

Enns and Cox (1997) conducted a review of studies that span over 3 decades, in which clinically depressed adult patients where sampled to explore the relationship between personality dimensions and depression. Reports from this review suggest that a number of personality factors show a significant relationship with depressive illness. However, the strongest research evidence pertaining to the relationship between personality and depression is available for Neuroticism**.** It was also reported that empirical evidence indicates that the association between depression and Extraversion is generally significant and consistent (Enns & Cox, 1997). Nevertheless, the findings of the present study are also consonant with the findings of a study conducted by Petersen et al. (2001), which revealed that depressed outpatients' NEO five – factor profile were characterized by elevated Neuroticism scale sores, and lowered Extraversion and low Conscientiousness scale scores. Also, studies that have investigated the Five Factor Model of Personality traits in depressed individuals have found that these individuals scored higher on Neuroticism, lower on Extraversion and lower on Conscientiousness, as compared to healthy control samples (Ryder et al., 2005). Lower levels of Conscientiousness have been associated with the personality profile of angry hostile depressed patients (Bagby et al., 1997), decreased self-efficacy (Martocchio & Judge, 1997), and higher levels of hopelessness which is a core feature of depression (Velting, 1999b).

The findings of the present study also demonstrates the utility of considering depression within the theoretical framework provided by the Five-Factor Model of Personality, as compared to Neuroticism and Extraversion, there is a paucity of research (Enns & Cox, 1997; Wang et al., 2002) on the relationship between Conscientiousness and depression.

5.3.3 Influence of Depressed Mood on the Relationship between Suicide Ideation and Personality

Depressed mood was found to be associated to both suicide ideation and personality features. Hence, it was necessary to consider the impact of depressed mood on the relationship between suicide ideation and personality. Accordingly, the influence of BDI scores on the relationship between Negative Ideation (suicide ideation) and the NEO-PI-R were removed in a partial correlation. When the impact of depressed mood was factored out of the relationship between personality and suicide ideation, suicide (negative) ideation was no longer significantly related to personality variables. This finding suggests that depressed mood is responsible for the obtained relationship between suicide ideation and high Neuroticism, low Extraversion and low Conscientiousness, respectively. In other words the relationship between suicide ideation and these personality variables seem to be dependent upon depression.

It is important to note that a literature review revealed that research conducted on the association between personality and suicide ideation in samples of depressed individuals reveal the most consistent association between these variables (Brezo et al., 2006b). The consistency of the findings in this regard could be as result of not factoring out the influence of depression on the relationship between personality and suicide ideation. There is a dearth of published research that has controlled for the impact of depression when investigating the relationship between personality and suicidal behaviours, despite the extensive empirical evidence on the association between depression and both personality and suicidal behaviour. A study conducted by Dumais et al. (2005) also reported on that study being the first to utilize a design that allowed for the direct control for the effect of major depressive disorder when investigating risk factors for suicide. To date there is a dearth of published studies (Duberstein et al., 2000; Kerby, 2003; Peirson, 2001; Useda et al., 2004; Velting, 1999a) that have directly examined suicide ideation in relation to scores obtained on the NEO-PI-R Inventory (NEO-PI-R; Costa & McCrae, 1992). It is not possible to compare current findings to findings of those studies as the impact of depression was not factored out of the association. However, Velting (1999a)

does acknowledge that Neuroticism or low emotional stability is positively related to suicidal thinking probably because Neuroticism is associated with depression, nevertheless, only considers depression in relation to being a facet of Neuroticism, that is high scores on the depression facet scale characterises the tendency to experience depressive affect.

Published studies (Brezo et al., 2006a; Cheng et al., 1997; Cox et al., 2004; Dumais et al., 2005; Statham et al., 1998) that have considered the influence of depression when investigating the relationship between personality traits and suicidal behaviours utilized various personality measures and, to the extent that comparison is possible, findings on the influence of depression are relatively less conclusive. For example a twin study encompassing several birth cohorts (Statham et al., 1998) utilised the three dimensional trait model (Psychoticism, Extraversion and Neuroticism) operationalised by the Eysenck Personality Questionnaire in investigating the relationship between personality and suicide ideation and suicide attempts respectively. That study found that Extraversion was not associated with suicide ideation and suicide attempts after controlling for the influence of depression. Whereas a study utilising the DAPP-BQ and Barrat Impulsiveness Scale to measure personality when investigating the relationship of personality traits with suicide ideation and suicide attempts in a cohort of young adults, representative of the general population of Quebec, found that low Extraversion was implicated as making independent contributions (e.g. to that of depression) to suicidal behaviours (Brezo et al., 2006a). Stratham et al. (1998) also found an association between Neuroticism and suicide ideation after psychopathology, including, depression, was controlled. Findings from another study (Cox et al., 2004) comprising a representative community sample, revealed that Neuroticism was only associated with current but not lifetime ideation after psychiatric variables, such as depression, were controlled. A discussion in this regard suggested that this finding may partly be a reflection of affective state dependence and report that Neuroticism may complement psychiatric diagnoses in understanding the prevalence of suicide ideation. On the other hand findings of the study conducted by Brezo et al. (2006a), which are more consistent with findings of the present study, in that traits contributing to emotional dysregulation,

such as Neuroticism, were not implicated in independent contributions to suicidal outcomes, that is suicide ideation and suicide attempts, respectively. In addition, even though low Extraversion was implicated as making independent contributions to suicidal outcomes, it was reported that one of the main contributors to suicidal outcomes in that study, appeared to be Axis I psychopathology (Brezo et al., 2006a). It has long been noted that certain personality traits are associated with psychopathology (Mehryar et al., 1977). The present study's findings are also consonant with findings from a study conducted by Dumais et al. (2005) and Cheng et al. (1997), in that after the influence of depression was directly controlled, the personality trait of impulsivity was no longer associated with suicide completion (Dumais et al., 2005), while the findings of a study conducted by Cheng et al. (1997) revealed that borderline personality disorder alone was not a risk for suicidal behaviour, however when borderline personality was comorbid with severe depression, the risk of dying by suicide was increased by almost 450 times.

Brezo et al. (2006b) caution that the reason for relatively few published research findings indicating a non-significant association between personality traits and suicidal behaviours may be related to publication bias. At this point it is important to point out that in the present study the non-significant association between personality traits and suicide ideation when the influence of depression is factored out, does not necessarily indicate that there is no association between these variables. Instead this finding seems to rather indicate the importance of obtaining a deeper understanding how personality traits interact with other known correlates of suicidal behaviour, such as depression, and how this interaction may be involved in susceptibility to suicidality. In addition, this finding may also indicate the need for future regression studies with other variables in order to determine the interaction of personality variables with other variables, such as depression, anxiety, levels of trauma and the like.

Nevertheless, the results of the present study are consistent with the well-established association between personality traits and depression and depression and suicide ideation. Consequently, this indicates the importance of considering depression as a potent

confounding variable when conducting research on the relationship between personality and suicide ideation or other suicidal behaviours in both non-clinical and clinical samples.

As reported earlier, an inverse relationship was found to exist between Positive Ideation and depressed mood. When the impact of depressed mood was factored out from the relationship between Positive Ideation and NEO-PI-R domains, Positive Ideation was no longer related low Neuroticism and high Conscientiousness, however still related to high Extraversion ($r = 0.395$, $p = 0.000$). This suggests the association between optimism or hopefulness about the future and low Neuroticism and high Conscientiousness was not independent from the influence of depressed mood. However optimism and hopefulness about the future was related to extraversion after the influence of depressed mood was controlled. The findings on the non significant associations underscore empirical evidence and literature on the association between Neuroticism and negative emotional states (Watson & Clark, 1992; Watson & Hubbard, 1996) which can be characterised by feelings associated with depression, such as hopelessness and dissatisfaction (Costa & McCrae, 1992; Velting, 1999a). Further, the finding on Extraversion underscores the association between Extraversion and the tendency to experience positive emotions, such as feeling optimistic and hopeful (Costa & McCrae, 1992; Watson & Clark, 1992).

Findings of the present study demonstrate the utility and importance of controlling the influence of recognized suicidal risk factors and recognizing potential mediators of suicide risk when investigating the relationship between personality and suicidal behaviours. In addition, findings suggest that future research should investigate the interaction of personality traits with other known psychopathology, social and biological correlates of suicidal behaviours. In so doing, suicide research has the potential to deepen current understanding of factors that contribute to the susceptibility to suicidal behaviour or mediate the risk of engaging in suicidal behaviour, while bridging the seemingly diverse areas of suicide research.

CHAPTER 6: CONCLUSION

6.1 CONCLUDING SUMMARY

International as well as South African data suggests that suicidal behaviour among young adults is a serious problem. Vulnerability to suicidal behaviour is multifaceted and therefore includes a very wide range of predisposing factors, such as personality traits and depression. Over the past three decades there has been increased interest in the role of personality traits as risk or protective factors in understanding suicidal behaviour. However studies investigating personality traits as correlates of suicide ideation have mostly focused on the traits of Neuroticism and Extraversion. Furthermore a dearth of these studies have controlled for the influence of depression when investigating the relationship between personality and suicide ideation or other forms of suicidal behaviour, despite that there is extensive conceptual literature and empirical evidence on the influence of depression on, suicidal behaviour as well as personality. Hence the present study endeavoured to address this gap by determining which of the five domains (Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness) of the Five Factor Model of Personality were significantly related to suicide ideation in a sample of young adults. Following this, the impact of depression was considered as a potential confounder and controlled for in the assessment of this relationship. The prevalence rate of suicide ideation was also determined. Given this, the present research is located within the domain of suicidology, personality and clinical psychology.

The finding on the prevalence rate of suicide ideation indicated that about 1 in 6 young adults had recently thought about killing themselves. The prevalence of suicidal behaviour in South Africa is not well documented. As a result reported data on suicidal behaviour most likely reflects only a part of the true extent of the problem. The present study's epidemiological figures are useful in terms of providing documentation on the prevalence of suicide ideation and insight on the extent of this form of suicidal behaviour in a sample of young adult university students.

The significance of the findings on the prevalence rate of suicide ideation is particularly advantageous from the standpoint of suicide prevention. As suicide ideation has been implicated as being the first warning sign of the eventual engagement in more serious suicidal behaviour such as attempted and completed suicide (Ahrens et al., 2000; American Psychological Association, 2004; Cox et al., 2004; Fanous et al., 2004; Fergusson et al., 2000; Kaplan & Sadock, 1995; Linden et al., 2003, Mann, 2002; Motto, 1965). In addition, empirical evidence has indicated that up to 5.5% of suicide ideators eventually commit suicide (Scocco et al., 2000). Hence determining the prevalence rate of suicide ideation could inform intervention strategies aimed at intervening during the early stages in the causal pathway to the occurrence of more serious suicidal acts. Given that suicide ideation also represents a form a form personal suffering (Ahrens et al., 2000; Cox et al., 2004; Linden et al., 2003; Schlebusch, 2005b) and in certain instances reflects pathological maladaptive coping behaviour (Ahrens et al., 2000). Determining levels of suicide ideation could also inform intervention strategies aimed at addressing personal suffering and maladaptive coping behaviour.

Following the assessment of the prevalence rate of suicide ideation, this study investigated whether a relationship exists between suicide ideation and personality. Findings in this regard revealed that suicide ideation was significantly related to high Neuroticism, low Extraversion and low Conscientiousness. Elevated Neuroticism characterise individuals who experience frequent negative affect, prone to having irrational thought processes, cope less effectively with stress, and have difficulty controlling impulses. Whereas introverts who are characterised by low Extraversion are not the opposite of extroverts, instead they are reserved, tend to be quiet, prefer and are comfortable with being alone. Finally, low Conscientiousness characterises individuals who tend to unreliable, lazy, less goal driven, experience difficulty in planning, organising and carrying out tasks, and are more hedonistic. The salient qualities of the profile associated with elevated suicide ideation is characterised by frequently experiencing negative affect, being introverted, having an independent nature and experiencing difficulty with completing tasks. These findings imply that the above

mentioned personality traits, which characterise selected patterns of feeling, thinking and behaving, engender a vulnerability to suicidal behaviour.

The possibility of depression confounding the results on the obtained relationship between suicide ideation and personality was considered. Findings revealed that depressed mood was significantly associated with suicide ideation as well as high Neuroticism, low Extraversion and low Conscientiousness. Hence in order to determine the degree to which depression could have been responsible for the obtained relationship between suicide ideation and personality, the influence of depression on the relationship was statistically controlled and the magnitude of the remaining relationship between personality and suicide ideation was determined. Findings in this regard revealed that when the impact of depressed mood was factored out of the relationship between personality and suicide ideation, suicide ideation was no longer significantly related to personality. This finding suggests that depressed mood was responsible for the obtained relationship between suicide ideation and high Neuroticism, low Extraversion and low Conscientiousness, respectively. Hence the relationship between suicide ideation and these personality variables seem to be dependent upon depression. The non-significant association between personality traits and suicide ideation when the influence of depression is factored out does not necessarily indicate that there is no association between suicide ideation and personality. Instead this finding seems to rather indicate that high Neuroticism, low Extraversion and low Conscientiousness interacts with depression, which is another known correlate of suicidal behaviour, in predisposing an individual to be susceptible to suicidality. This also points to a weakness in other studies that do not control for depression.

It has been proposed that personality traits should be considered when crafting and targeting prevention strategies. The findings of the present study could be utilised to alert to the importance of considering depressions influence on the relationship between personality and suicidality as well as the importance of considering how personality and depression may interact in producing vulnerability to suicidality when crafting and targeting prevention strategies. It has also been postulated that personality trait predictors

of suicide ideation could be useful in identifying subgroups of suicidal individuals before these individuals' attempt or complete suicide (Brezo et al., 2006b). However the findings of the present study also highlights the importance of investigating the interaction between personality traits and other known correlates of suicidal behaviour and how this interaction may be involved in susceptibility to suicidality. Hence it is proposed that further studies are needed before the findings on trait predictors of suicide ideation can be confidently utilised to inform intervention strategies and clinical application.

The investigation of the nature of the relationship between personality and suicide ideation included determining whether personality traits are potential mediators or protective factors against suicidality, namely suicide ideation. Positive ideation or optimism about the future is conceptualised as being a protective (buffering) factor in the analyses of suicide related behaviours (Muehlenkamp et al., 2005; Osman et al., 1998; Winters et al., 2002). Findings in the study revealed that positive ideation was significantly related to low Neuroticism, high Extraversion and high Conscientiousness. Low Neuroticism characterise individuals who are emotionally stable, tend to be calm, secure, relaxed, even-tempered, and deal with stressful experiences more effectively. While high Extraversion characterises individuals who are sociable, friendly, enjoy being around people, and are affectionate, tend to be talkative, assertive, and active, seek stimulation, excitement and the company of others, and generally experience positive affect. Finally, high Conscientiousness characterises individuals who are purposeful, strong-willed, motivated, well organised, and determined. The salient qualities of the profile associated with potential mediators or protective factor against suicide ideation is characterised by Emotional Stability/psychological adjustment, being an extravert, motivated and determined to complete tasks. This finding suggests that the above mentioned personality traits and profile associated with optimism about the future, potentially protects against suicidality, namely suicide ideation. However when the impact of depressed mood was statistically factored out from the relationship between Positive Ideation and personality, Positive Ideation was only related to high Extraversion.

This suggests that regardless of the presence of depression, extraversion is related to being optimistic about the future and possibility protects against suicidality.

The findings of this study suggests that the prevalence rate of suicide ideation among South African young adults needs more focus in research in order to inform intervention strategies. Particularly since data suggests that suicidal behaviour among this age group is a serious problem in South Africa. The findings of the present study also suggest that selected personality traits, namely high Neuroticism, low Extraversion, and low Conscientiousness interact with depression in producing vulnerability to suicidality. Whereas selected personality traits may act as protective factors against suicidality. These findings indicate that internationally as well as in South Africa, there is a need for future research to investigate, the interaction of personality traits with other correlates of suicidal behaviour, as well as, personality traits as protective factors against suicidality. Given that while there are numerous studies that have investigated personality traits as correlates of suicidal behaviour, there is a dearth of published research that has focused on the two areas mentioned above. Furthermore, a literature review for the purpose of the present study revealed that to date in South Africa there is no published research in this regard.

6.2 LIMITATIONS AND STRENGTHS

The present study addressed the gap in the area of research on the nature of the relationship between personality and suicide ideation in the South African context. The results of the present study cannot be assumed to predict a relationship between personality and suicide attempts or completed suicide. Given that, even though there is extensive empirical evidence that demonstrate a significant link between suicide ideation and suicidal acts, empirical evidence also indicates that suicide ideation does not necessarily imply that suicide will be attempted or completed. Furthermore the nature of distinct suicidal populations has been debated for years. There is still no consensus in the suicidology literature on whether research on suicide ideation could substitute for research on attempted suicide and completed suicide (Duberstein et al., 2000).

Nevertheless, it is noteworthy to emphasise that despite this, focusing on suicide ideation has the potential to inform intervention strategies aimed at intervening during the early stages in the causal pathway to the occurrence of suicidal acts such as attempted suicide and completed suicide, given the extensive empirical evidence which demonstrates a significant link between suicide ideation and suicidal acts.

Caution must be exercised when generalising the results of the present study for a number of reasons. Firstly, the sample comprised of students and generalising the findings of this study to other population requires further investigation. Secondly, the sample was primarily comprised of females. Hence gender bias could have skewed the overall results. In addition, reports suggests that females tend to be more willing than males, to report on negative affective experiences when responding to self report questionnaires (D'Zurilla et al., 1998). Given the above it cannot be assumed that the sample is representative of young adults.

Findings of the present study raised the importance of controlling for confounding variables, such as depression, when investigating personality traits as a correlate of suicidal behaviour. However predisposing factors which independently contribute to the risk of engaging in suicidal behaviour include various psychiatric disorders, personal history of abuse, trauma, stress, and suicidality, family dynamics and relational networks. This study did not determine the possible influence of these confounding variables.

Finally, the design of this study did not enable for the determination of causality of the relationship between personality and suicide ideation. A longitudinal design would facilitate the investigation of causation.

The above limitations cannot undermine the present study's strengths. Chief of which are its novelty and its public health significance in the South African context. The present study's design allowed for the prevalence rate of suicide ideation to be determined among young adults, an age group among whom suicidal behaviour is a serious problem. Since research and data in this regard in South Africa is seriously lacking, the epidemiological

data obtained from this study is particularly significant. Similarly, to date there is no published South African study that has investigated the relationship between suicide ideation and the personality traits that constitute the Five Factor Model of Personality. Whilst the international studies that have investigated personality traits as correlates of suicide ideation have mostly focused on the traits of Neuroticism and Extraversion and only a few studies have applied a comprehensive personality taxonomy such as the Five Factor Model. Furthermore a dearth of the studies that have investigated the relationship between personality and suicide ideation or other forms of suicidal behaviour, have controlled for the influence of depression or investigated personality traits as protective factors in understanding suicidal behaviour. Hence the present study endeavoured to address this gap. In doing so the present study has added to the fields of suicidology, personality and clinical psychology by adding to theory and providing an empirical basis for discussion regarding suicide ideation, personality and depression, and the prevalence of suicide ideation in South African young adults. This contribution cannot be undermined.

The utilization of a non-clinical sample of young adults is another important strength. Since international (Fanous et al., 2004) as well as South African (Schlebusch, 2005b) studies of suicidal behaviour have been frequently conducted on clinical samples and non-clinical samples have not received much attention. Furthermore suicidal behaviour among young adults deserves research attention within the South African context. Given the limited amount of research attention this age groups has received in South Africa as compared to international studies.

Other significant strengths of this study include the utilization of research validated measures of personality, suicide ideation and depressed mood. The Revised Neo Personality Inventory (NEO-PI-R), the Positive and Negative Suicide Ideation Inventory (PANSI), and the Becks Depression Inventory (BDI), respectively, have been found to be valid and reliable measures of their constructs.

Another significant strength of the present study it this study's design. The design allowed for the relationship between personality and suicide ideation to be determined. In doing so the gap in this area of research within the South African context is being addressed. This design also allowed for the influence of depression to be factored out of the relationship between personality and suicide ideation. This is a milestone in this area of research internationally as well as in South Africa. Given that throughout the world there is a lack of studies that have controlled for the influence of depression when investigating the relationship between personality and suicide ideation. Despite that there is extensive literature on the association between depression and suicidal behaviour and personality, respectively. The present study has provided the empirical basis for future research. As such, has chartered the way into new territory within the area of research on the relationship between personality and suicidal behaviour.

Given that medical and mental health professionals will deal directly with suicide or encounter suicidal problems in one form or another (Stolberg, Clark, & Bongar, 2002). This study represents a step toward accumulating knowledge on suicidal behaviour which could contribute to clinical practice, intervention strategies, and prevention efforts.

6.3 IMPLICATIONS FOR FUTURE RESEARCH

The limitations and strengths of the present study provide areas of focus for future research.

Future research that focuses on evaluating suicide ideation, attempted suicide as well as completed suicide can significantly contribute to increasing knowledge on the nature of suicidal populations. Furthermore, in South Africa epidemiological research focusing on suicidal behaviour is limited. South African epidemiological data would provide a basis to compare findings of suicidal behaviour studies conducted in South Africa.

This study also raised the importance of controlling for the influence of depression and determining whether personality traits are protective factors, when investigating the

relationship between suicide ideation and personality among young adults. However these findings warrant replication in more representative samples of young adults. This study focused on the broad personality traits and did not identify which narrow traits or facets made significant contributions to the association with suicide ideation. Hence research in this regard deserves further attention as the exploration of these lower level traits mark important individual differences (Costa et al., 1991). Research considering the significant contribution of narrow traits, the influence of depression, and personality traits as protective factors against suicidal behaviour, could be valuable in contributing to an aspect of a comprehensive risk assessment which in turn could inform prevention and intervention programmes aimed at individuals who are at risk for suicidal behaviour.

Another direction of future research would be to consider gender differences in personality and suicide ideation. Findings in this regard have been less conclusive, some studies have found gender differences (Velting, 1999a) and other studies have not (Kerby, 2003).

Finally, longitudinal studies would be useful in assessing whether personality traits have a causative or a less direct role in understanding suicidal behaviour.

In conclusion vulnerability to suicidal behaviour is multifaceted. The findings of this study alert to the importance of considering confounding variables when investigating personality traits as correlates or predictors of suicidal behaviour. Hence it cannot be over stated that future studies need to consider the possible influence of other predisposing factors for suicidality before the findings on trait predictors or correlates of suicide ideation can be confidently utilised to inform intervention strategies and clinical application. Multivariate research would be useful in facilitating more control over confounding variables.

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APPENDIX A: INFORMED CONSENT FORM

PARTICIPANT INFORMATION SHEET

Dear Participant/Student

My name is Shantall Tryon and I am a student studying for a master's degree in clinical psychology which requires the completion of a research study. This research study is titled 'Suicide Ideation and the Five-Factor Model of Personality in young adults'. The central aim of the study is to investigate whether there is a relationship between personality and suicide ideation in young adults aged 22 to 28 years. The questionnaires in this document are designed to assess various aspects of an individuals personality, as well as ones thoughts regarding suicide.

Should you consent to participate in this study, you are asked to complete the questionnaires in this document. These questionnaires will ask you questions about yourself and should take you about 30 minutes to complete. Please complete all questions as honestly and accurately as possible. All information disclosed will remain confidential. No names or identifying information will be used in reporting results. An envelope has been provided for you to enclose your completed questionnaires. You will not be compromised or prejudiced in anyway if you decide to not complete all or part of these questionnaires. Participation in this research is voluntary. If you choose to participate in this study, please complete and sign the form which is provided to indicate your consent.

It is anticipated that filling in the questionnaires will not be distressing, however should you require further support with emotional issues after completion of the questionnaires, you can contact the following resources:
Wits Psychology Clinic on 011 716-2407
Trauma Clinic on 011 403-5102
Depression and Anxiety Support Group on 011 783-1474/6

The results of this study will be published in a final research report once the study has been completed. Only group trends will be reported. If you are interested in receiving a copy of a summary of the results of this study you are welcome to contact me. The research report will be available in Cullen Library once I have completed my degree.

Thank you for your time.

Shantall Tryon - 0829022485

CONSENT FORM

I understand the purpose and procedure of the research project titled:
Suicide Ideation and the Five-Factor Model of Personality in young adults

I understand that I may withdraw at anytime from participation in this study, without any negative consequences. I also understand that all information I shall have given will be treated as confidential and that I will remain anonymous in the research report. I also understand that I have the right to refuse to answer any question. I may also request a copy of a summary of the results of this research project.

I (Name in block letters)_____ agree to participate in this research project conducted by Shantall Tryon, masters student studying clinical psychology at the University of Witwatersrand.

Signature (Participant) _____

Researcher (Shantall Tryon) _____

Date _____

APPENDIX B: RESEARCH INSTRUMENTS

APPENDIX C: TWO SAMPLE T-TEST

The following is a copy of the two sample t-test, generated by SAS. The two sample t-test was calculated in order to determine whether there was a significant difference in age between the males and females on the PANSI Negative subscale and PANSI Positive Ideation subscale, respectively.

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Two Sample t Test for PANSI NI,PI,Age

The TTEST Procedure

Statistics

Variable	1 Gender	N	Lower CL Mean	Mean	Upper CL Mean	Lower CL Std Dev	Std Dev	Upper CL Std Dev	Std Err	Minimum	Maximum
NegDiv	1	20	0.9888	1.4313	1.8737	0.719	0.9454	1.3809	0.2114	1	4.5
NegDiv	2	63	1.2317	1.4385	1.6453	0.6986	0.8212	0.9962	0.1035	0.875	4.5
NegDiv	Diff (1-2)		-0.442	-0.007	0.4278	0.7386	0.852	1.0068	0.2187		
PosDiv	1	20	3.2636	3.5333	3.8031	0.4383	0.5763	0.8418	0.1289	1.8333	4.5
PosDiv	2	63	3.2559	3.4074	3.5589	0.5118	0.6015	0.7297	0.0758	1.8333	4.3333
PosDiv	Diff (1-2)		-0.178	0.1259	0.4301	0.5164	0.5957	0.704	0.1529		
Age	1	20	22.651	23.65	24.649	1.6231	2.1343	3.1173	0.4772	22	28
Age	2	63	23.572	24.127	24.682	1.8746	2.2033	2.673	0.2776	22	28
Age	Diff (1-2)		-1.594	-0.477	0.64	1.8962	2.1873	2.5849	0.5614		

T-Tests					
Variable	Method	Variances	DF	t Value	Pr > |t|
NegDiv	Pooled	Equal	81	-0.03	0.9737
NegDiv	Satterthwaite	Unequal	28.7	-0.03	0.9757
PosDiv	Pooled	Equal	81	0.82	0.4126
PosDiv	Satterthwaite	Unequal	33.2	0.84	0.4056
Age	Pooled	Equal	81	-0.85	0.3980
Age	Satterthwaite	Unequal	32.9	-0.86	0.3939

Equality of Variances					
Variable	Method	Num DF	Den DF	F Value	Pr > F
NegDiv	Folded F	19	62	1.33	0.4016
PosDiv	Folded F	62	19	1.09	0.8719
Age	Folded F	62	19	1.07	0.9176

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APPENDIX D: DESCRIPTIVE STATISTICS

The following is a copy of the descriptive statistics, generated by SAS, in the form of means, standard deviations, maximum and minimum scores, which were calculated for the scales of the NEO-PI-R domains, PANSI PI and NI, and the BDI, respectively.

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Summary Statistics

Results

The MEANS Procedure

Variable	Label	Maximum	Mean	Minimum	N	Range	Std Dev
TotNeuro	TotNeuro	160.0000000	97.3614458	35.0000000	83	125.0000000	23.1683017
TotExtra	TotExtra	173.0000000	117.2168675	59.0000000	83	114.0000000	21.0226638
TotOpen	TotOpen	174.0000000	120.6746988	69.0000000	83	105.0000000	19.6438462
TotAgree	TotAgree	151.0000000	118.4337349	48.0000000	83	103.0000000	18.0677538
TotConsc	TotConsc	166.0000000	116.3855422	69.0000000	83	97.0000000	22.8563015

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Summary Statistics

Results

The MEANS Procedure

Variable	Label	Maximum	Mean	Minimum	N	Range	Std Dev
PosDiv	PosDiv	4.5000000	3.4377510	1.8333333	83	2.6666667	0.5945272
NegDiv	NegDiv	4.5000000	1.4367470	0.8750000	83	3.6250000	0.8467508
TotBDI	TotBDI	42.0000000	11.0481928	0	83	42.0000000	9.7791511

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APPENDIX E: DISPRIBUTION ANALYSIS

The following is a copy of the skewness coefficients, genearated by SAS, which were calculated for the scales of the NEO-PI-R domains, PANSI PI and NI, and the BDI, respectively. Skewness coefficients were calculated in order to allow the researcher to test for the parametric assumption of normality. Results in this regard informed the utilization of non-parametric spearman's correlation co-efficient in order to answer research questions two and three.

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Distribution analysis of: TotNeuro TotExtra TotOpen TotAgree TotConsc

The UNIVARIATE Procedure

Variable: TotNeuro (TotNeuro)

Basic Statistical Measures			
Location		**Variability**	
Mean	97.36145	**Std Deviation**	23.16830
Median	95.00000	**Variance**	536.77020
Mode	84.00000	**Range**	125.00000
		Interquartile Range	27.00000

NOTE: The mode displayed is the smallest of 3 modes with a count of 4.

Basic Confidence Limits Assuming Normality			
Parameter	**Estimate**	**95% Confidence Limits**	
Mean	97.36145	92.30251	102.42039
Std Deviation	23.16830	20.10078	27.34940
Variance	536.77020	404.04122	747.98953

Tests for Location: Mu0=0				
Test	Statistic		P Value	
Student's t	T	38.28528	Pr > |t|	<.0001
Sign	M	41.5	Pr >= |M|	<.0001
Signed Rank	S	1743	Pr >= |S|	<.0001

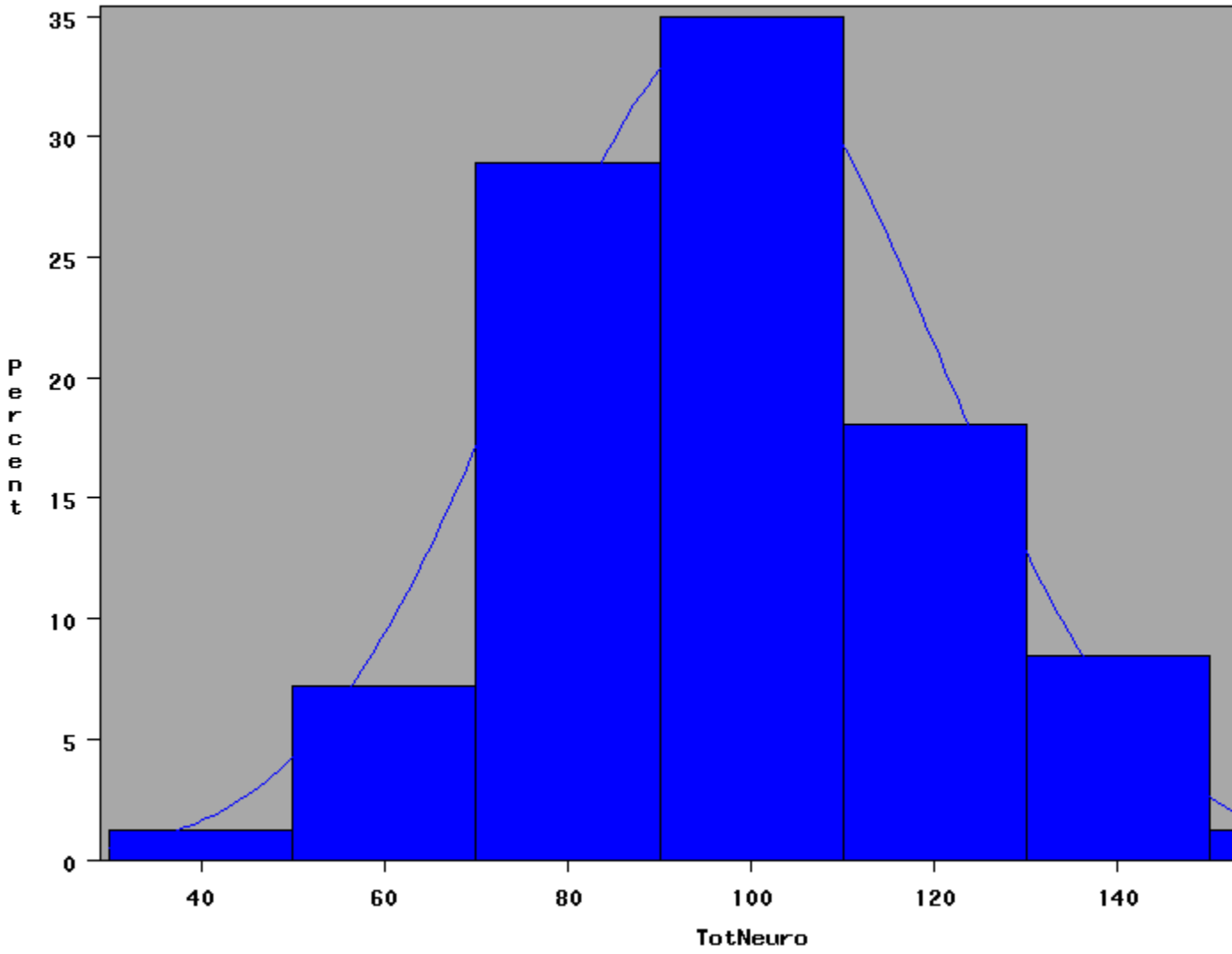
Tests for Normality				
Test	Statistic		p Value	
Shapiro-Wilk	W	0.99306	Pr < W	0.9408
Kolmogorov-Smirnov	D	0.06044	Pr > D	>0.1500
Cramer-von Mises	W-Sq	0.046905	Pr > W-Sq	>0.2500
Anderson-Darling	A-Sq	0.272495	Pr > A-Sq	>0.2500

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Distribution analysis of: TotNeuro TotExtra TotOpen TotAgree TotConsc

The UNIVARIATE Procedure

Variable: TotNeuro (TotNeuro)



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Distribution analysis of: TotNeuro TotExtra TotOpen TotAgree TotConsc

The UNIVARIATE Procedure

Fitted Distribution for TotNeuro

Parameters for Normal Distribution		
Parameter	**Symbol**	**Estimate**
Mean	Mu	97.36145
Std Dev	Sigma	23.1683

Goodness-of-Fit Tests for Normal Distribution				
Test	**Statistic**		**p Value**	
Kolmogorov-Smirnov	**D**	0.06044046	**Pr > D**	>0.150
Cramer-von Mises	**W-Sq**	0.04690503	**Pr > W-Sq**	>0.250
Anderson-Darling	**A-Sq**	0.27249492	**Pr > A-Sq**	>0.250

Quantiles for Normal Distribution		
	Quantile	
Percent	**Observed**	**Estimated**
1.0	35.0000	43.4639
5.0	59.0000	59.2530
10.0	70.0000	67.6701
25.0	84.0000	81.7347
50.0	95.0000	97.3614
75.0	111.0000	112.9882

Quantiles for Normal Distribution		
	Quantile	
Percent	Observed	Estimated
90.0	128.0000	127.0528
95.0	137.0000	135.4699
99.0	160.0000	151.2590

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Distribution analysis of: TotNeuro TotExtra TotOpen TotAgree TotConsc

The UNIVARIATE Procedure

Variable: TotExtra (TotExtra)

Basic Statistical Measures			
Location		Variability	
Mean	117.2169	Std Deviation	21.02266
Median	121.0000	Variance	441.95239
Mode	128.0000	Range	114.00000
		Interquartile Range	25.00000

Basic Confidence Limits Assuming Normality			
Parameter	Estimate	95% Confidence Limits	
Mean	117.21687	112.62644	121.80729
Std Deviation	21.02266	18.23922	24.81654
Variance	441.95239	332.66933	615.86087

Tests for Location: Mu0=0				
Test	Statistic		p Value	
Student's t	T	50.79739	Pr > |t|	<.0001
Sign	M	41.5	Pr >= |M|	<.0001
Signed Rank	S	1743	Pr >= |S|	<.0001

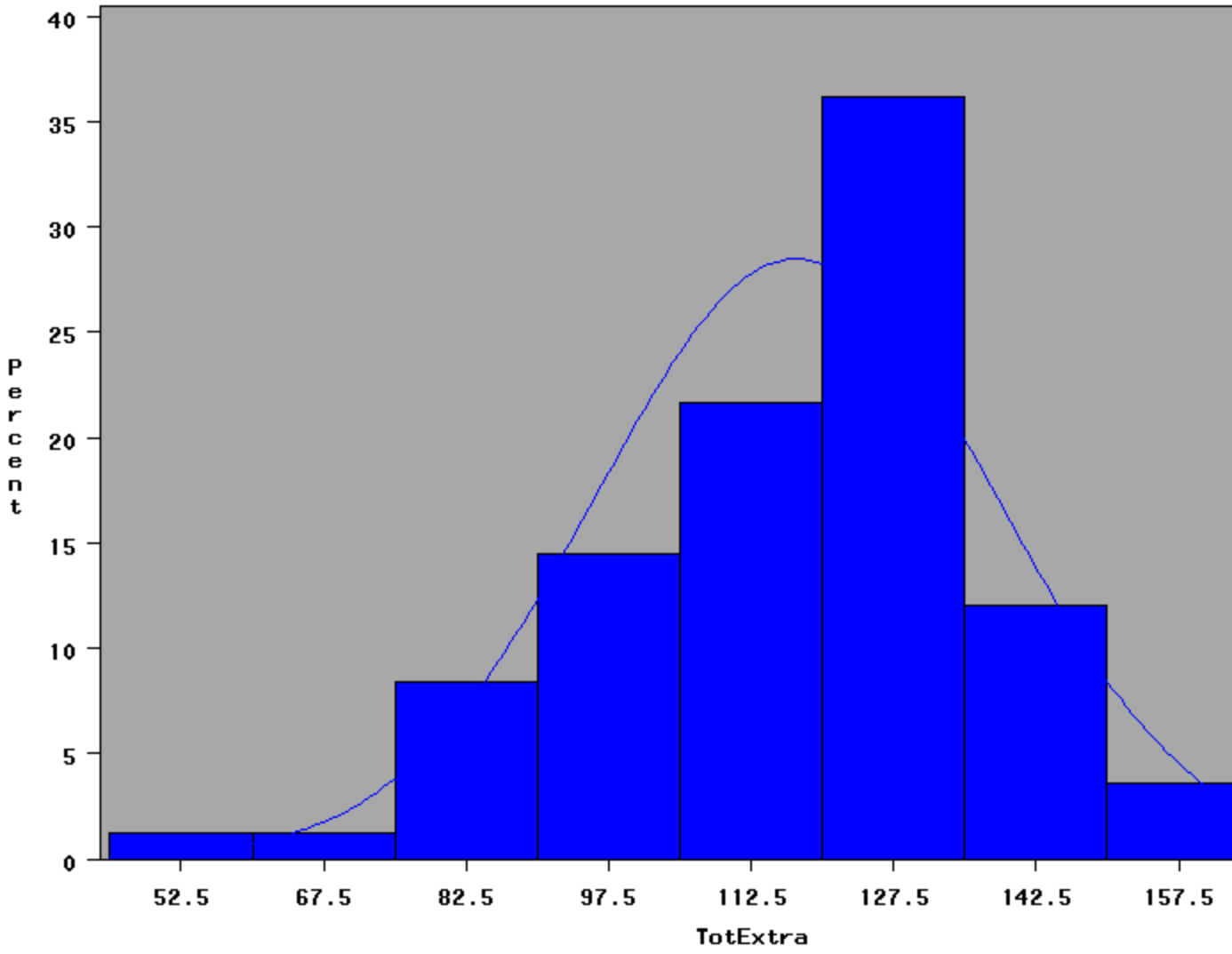
Tests for Normality				
Test	Statistic		p Value	
Shapiro-Wilk	W	0.979536	Pr < W	0.2083
Kolmogorov-Smirnov	D	0.102353	Pr > D	0.0308
Cramer-von Mises	W-Sq	0.138579	Pr > W-Sq	0.0348
Anderson-Darling	A-Sq	0.726464	Pr > A-Sq	0.0577

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Distribution analysis of: TotNeuro TotExtra TotOpen TotAgree TotConsc

The UNIVARIATE Procedure

Variable: TotExtra (TotExtra)



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Distribution analysis of: TotNeuro TotExtra TotOpen TotAgree TotConsc

The UNIVARIATE Procedure

Fitted Distribution for TotExtra

Parameters for Normal Distribution		
Parameter	**Symbol**	**Estimate**
Mean	Mu	117.2169
Std Dev	Sigma	21.02266

Goodness-of-Fit Tests for Normal Distribution				
Test	**Statistic**		**p Value**	
Kolmogorov-Smirnov	**D**	0.10235250	**Pr > D**	0.031
Cramer-von Mises	**W-Sq**	0.13857876	**Pr > W-Sq**	0.035
Anderson-Darling	**A-Sq**	0.72646392	**Pr > A-Sq**	0.058

Quantiles for Normal Distribution		
	Quantile	
Percent	**Observed**	**Estimated**
1.0	59.0000	68.3108
5.0	82.0000	82.6377
10.0	89.0000	90.2752
25.0	104.0000	103.0373
50.0	121.0000	117.2169
75.0	129.0000	131.3964
90.0	141.0000	144.1585
95.0	145.0000	151.7961

Quantiles for Normal Distribution		
	Quantile	
Percent	Observed	Estimated
99.0	173.0000	166.1229

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Distribution analysis of: TotNeuro TotExtra TotOpen TotAgree TotConsc

The UNIVARIATE Procedure

Variable: TotOpen (TotOpen)

Basic Statistical Measures			
Location		Variability	
Mean	120.6747	Std Deviation	19.64385
Median	120.0000	Variance	385.88069
Mode	113.0000	Range	105.00000
		Interquartile Range	24.00000

NOTE: The mode displayed is the smallest of 2 modes with a count of 5.

Basic Confidence Limits Assuming Normality			
Parameter	Estimate	95% Confidence Limits	
Mean	120.67470	116.38535	124.96405
Std Deviation	19.64385	17.04297	23.18890
Variance	385.88069	290.46267	537.72493

Tests for Location: Mu0=0				
Test	Statistic		p Value	
Student's t	T	55.96658	Pr > |t|	<.0001
Sign	M	41.5	Pr >= |M|	<.0001
Signed Rank	S	1743	Pr >= |S|	<.0001

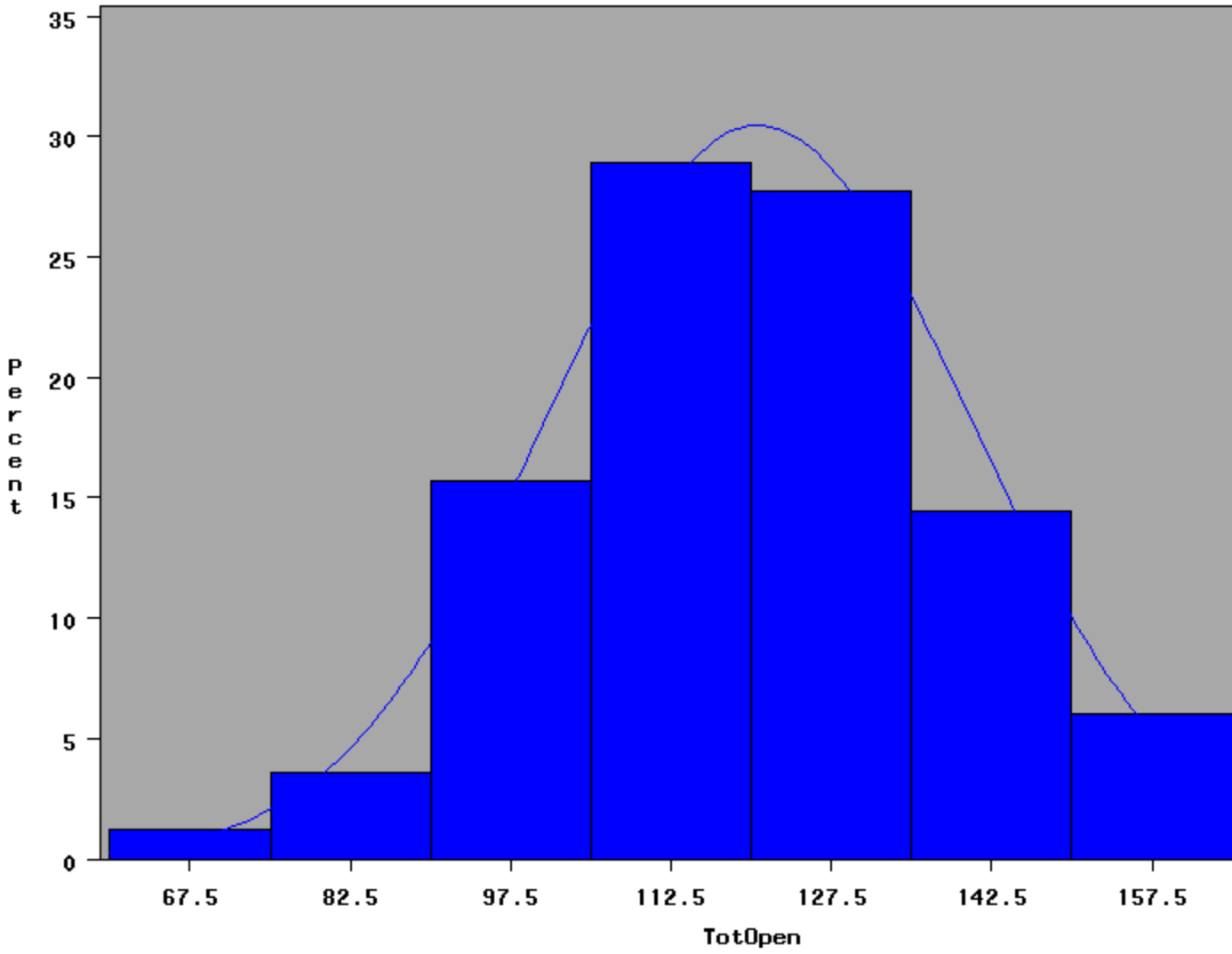
Tests for Normality				
Test	Statistic		p Value	
Shapiro-Wilk	W	0.993733	Pr < W	0.9629
Kolmogorov-Smirnov	D	0.059446	Pr > D	>0.1500
Cramer-von Mises	W-Sq	0.040209	Pr > W-Sq	>0.2500
Anderson-Darling	A-Sq	0.234989	Pr > A-Sq	>0.2500

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Distribution analysis of: TotNeuro TotExtra TotOpen TotAgree TotConsc

The UNIVARIATE Procedure

Variable: TotOpen (TotOpen)



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Distribution analysis of: TotNeuro TotExtra TotOpen TotAgree TotConsc

The UNIVARIATE Procedure

Fitted Distribution for TotOpen

Parameters for Normal Distribution		
Parameter	Symbol	Estimate
Mean	Mu	120.6747
Std Dev	Sigma	19.64385

Goodness-of-Fit Tests for Normal Distribution				
Test	Statistic		p Value	
Kolmogorov-Smirnov	D	0.05944623	Pr > D	>0.150
Cramer-von Mises	W-Sq	0.04020854	Pr > W-Sq	>0.250
Anderson-Darling	A-Sq	0.23498935	Pr > A-Sq	>0.250

Quantiles for Normal Distribution		
	Quantile	
Percent	Observed	Estimated
1.0	69.0000	74.9763
5.0	92.0000	88.3634
10.0	98.0000	95.5001
25.0	109.0000	107.4251
50.0	120.0000	120.6747
75.0	133.0000	133.9243
90.0	146.0000	145.8493
95.0	152.0000	152.9860

Quantiles for Normal Distribution		
	Quantile	
Percent	Observed	Estimated
99.0	174.0000	166.3731

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Distribution analysis of: TotNeuro TotExtra TotOpen TotAgree TotConsc

The UNIVARIATE Procedure

Variable: TotAgree (TotAgree)

Basic Statistical Measures			
Location		Variability	
Mean	118.4337	Std Deviation	18.06775
Median	121.0000	Variance	326.44373
Mode	127.0000	Range	103.00000
		Interquartile Range	23.00000

Basic Confidence Limits Assuming Normality			
Parameter	Estimate	95% Confidence Limits	
Mean	118.43373	114.48853	122.37894
Std Deviation	18.06775	15.67555	21.32837
Variance	326.44373	245.72288	454.89949

Tests for Location: Mu0=0				
Test	Statistic		p Value	
Student's t	T	59.71869	Pr > |t|	<.0001
Sign	M	41.5	Pr >= |M|	<.0001
Signed Rank	S	1743	Pr >= |S|	<.0001

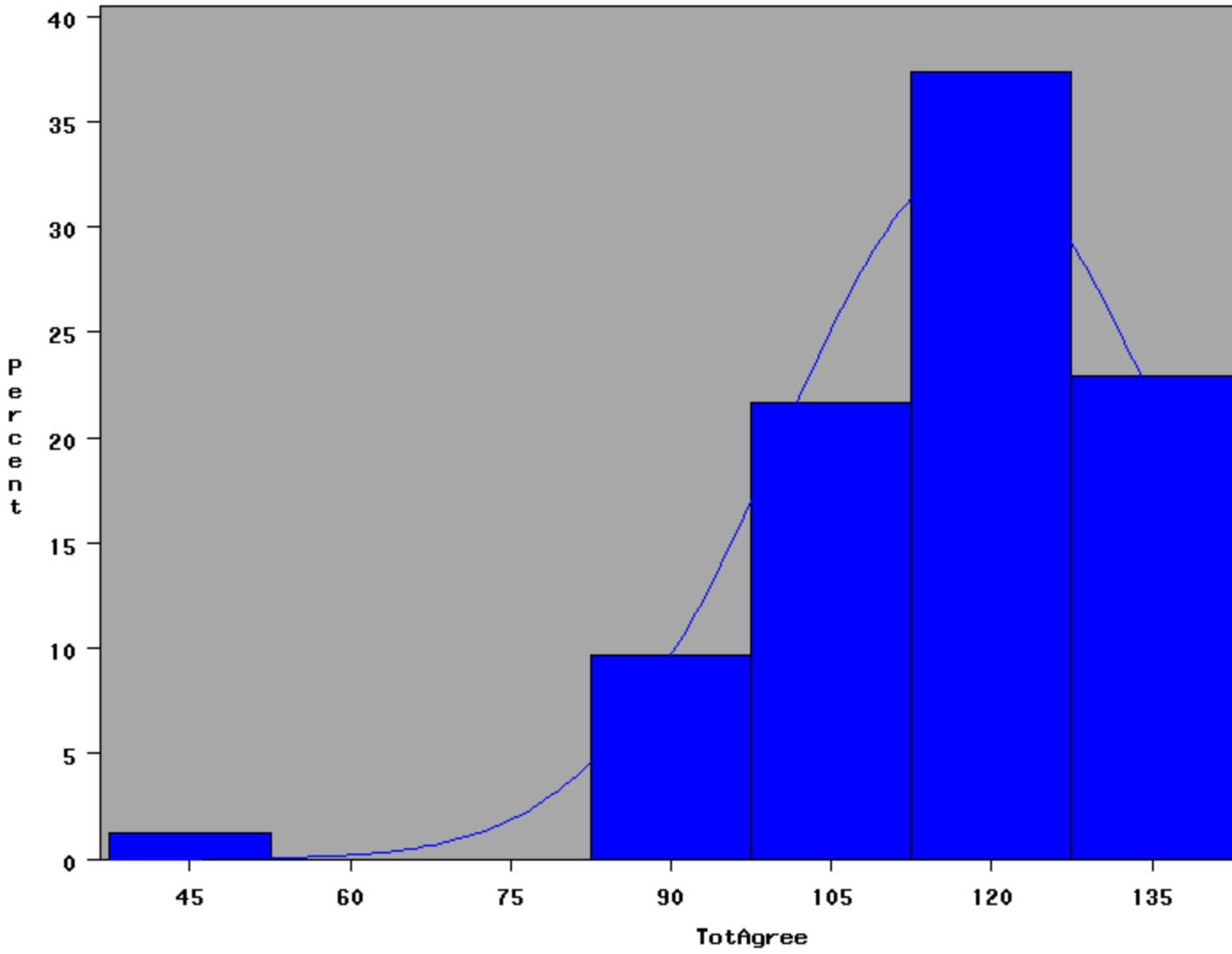
Tests for Normality				
Test	Statistic		p Value	
Shapiro-Wilk	W	0.960668	Pr < W	0.0123
Kolmogorov-Smirnov	D	0.090815	Pr > D	0.0895
Cramer-von Mises	W-Sq	0.089936	Pr > W-Sq	0.1531
Anderson-Darling	A-Sq	0.533991	Pr > A-Sq	0.1742

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Distribution analysis of: TotNeuro TotExtra TotOpen TotAgree TotConsc

The UNIVARIATE Procedure

Variable: TotAgree (TotAgree)



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Distribution analysis of: TotNeuro TotExtra TotOpen TotAgree TotConsc

The UNIVARIATE Procedure

Fitted Distribution for TotAgree

Parameters for Normal Distribution		
Parameter	Symbol	Estimate
Mean	Mu	118.4337
Std Dev	Sigma	18.06775

Goodness-of-Fit Tests for Normal Distribution				
Test	Statistic		p Value	
Kolmogorov-Smirnov	D	0.09081454	Pr > D	0.090
Cramer-von Mises	W-Sq	0.08993635	Pr > W-Sq	0.153
Anderson-Darling	A-Sq	0.53399071	Pr > A-Sq	0.174

Quantiles for Normal Distribution		
	Quantile	
Percent	Observed	Estimated
1.0	48.0000	76.4019
5.0	90.0000	88.7149
10.0	95.0000	95.2790
25.0	107.0000	106.2472
50.0	121.0000	118.4337
75.0	130.0000	130.6202
90.0	141.0000	141.5885
95.0	145.0000	148.1525

Quantiles for Normal Distribution		
	Quantile	
Percent	Observed	Estimated
99.0	151.0000	160.4656

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Distribution analysis of: TotNeuro TotExtra TotOpen TotAgree TotConsc

The UNIVARIATE Procedure

Variable: TotConsc (TotConsc)

Basic Statistical Measures			
Location		Variability	
Mean	116.3855	Std Deviation	22.85630
Median	119.0000	Variance	522.41052
Mode	121.0000	Range	97.00000
		Interquartile Range	28.00000

NOTE: The mode displayed is the smallest of 3 modes with a count of 4.

Basic Confidence Limits Assuming Normality			
Parameter	Estimate	95% Confidence Limits	
Mean	116.38554	111.39473	121.37635
Std Deviation	22.85630	19.83009	26.98109
Variance	522.41052	393.23230	727.97931

Tests for Location: Mu0=0				
Test	Statistic		p Value	
Student's t	T	46.39083	Pr > |t|	<.0001
Sign	M	41.5	Pr >= |M|	<.0001
Signed Rank	S	1743	Pr >= |S|	<.0001

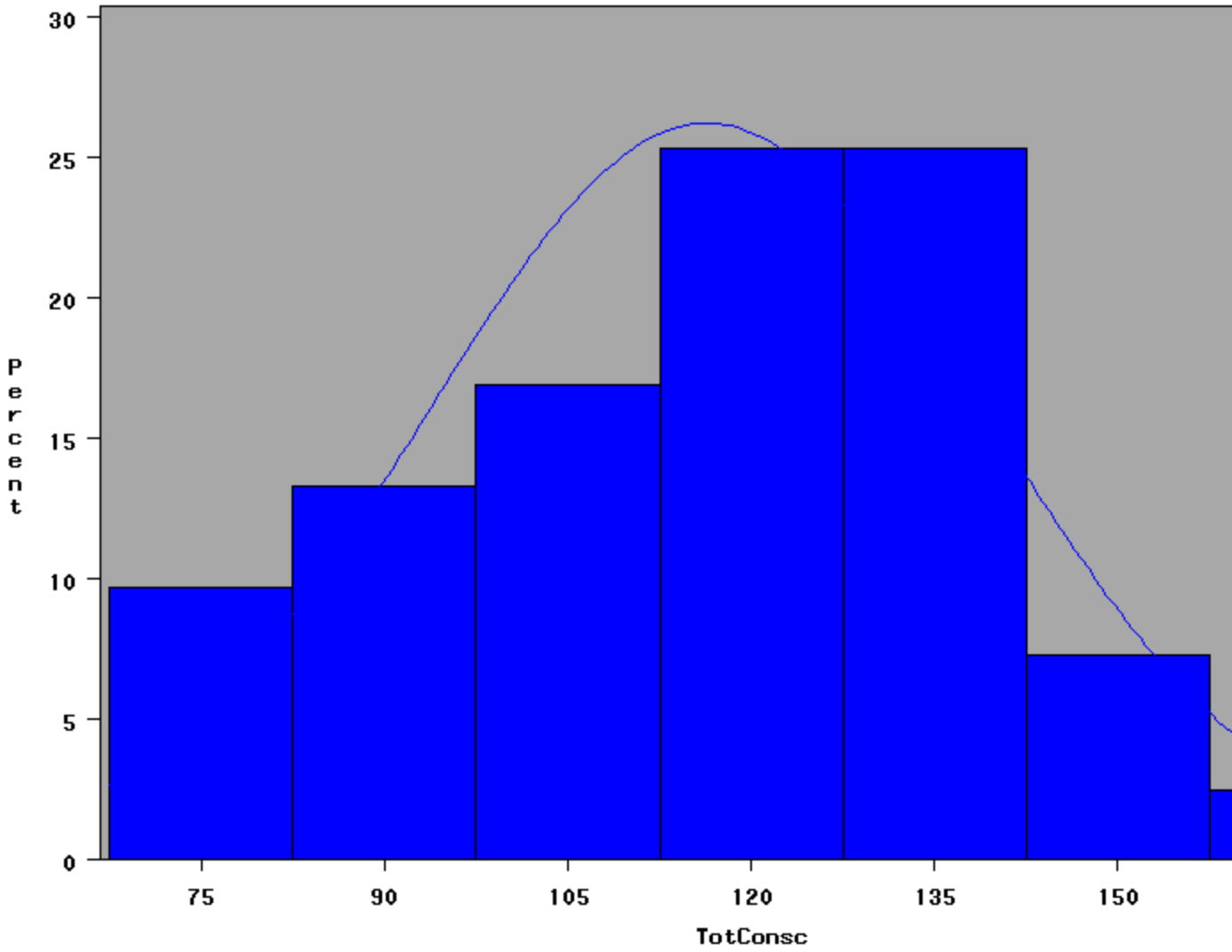
Tests for Normality				
Test	Statistic		p Value	
Shapiro-Wilk	W	0.976768	Pr < W	0.1376
Kolmogorov-Smirnov	D	0.083812	Pr > D	>0.1500
Cramer-von Mises	W-Sq	0.097283	Pr > W-Sq	0.1236
Anderson-Darling	A-Sq	0.629269	Pr > A-Sq	0.0983

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Distribution analysis of: TotNeuro TotExtra TotOpen TotAgree TotConsc

The UNIVARIATE Procedure

Variable: TotConsc (TotConsc)



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Distribution analysis of: TotNeuro TotExtra TotOpen TotAgree TotConsc

The UNIVARIATE Procedure

Fitted Distribution for TotConsc

Parameters for Normal Distribution		
Parameter	Symbol	Estimate
Mean	Mu	116.3855
Std Dev	Sigma	22.8563

Goodness-of-Fit Tests for Normal Distribution				
Test	Statistic		p Value	
Kolmogorov-Smirnov	D	0.08381231	Pr > D	>0.150
Cramer-von Mises	W-Sq	0.09728259	Pr > W-Sq	0.124
Anderson-Darling	A-Sq	0.62926864	Pr > A-Sq	0.098

Quantiles for Normal Distribution		
	Quantile	
Percent	Observed	Estimated
1.0	69.0000	63.2138
5.0	77.0000	78.7903
10.0	83.0000	87.0940
25.0	106.0000	100.9692
50.0	119.0000	116.3855
75.0	134.0000	131.8019
90.0	142.0000	145.6771
95.0	151.0000	153.9808

Quantiles for Normal Distribution		
	Quantile	
Percent	Observed	Estimated
99.0	166.0000	169.5573

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Distribution analysis of: PosDiv NegDiv TotBDI

The UNIVARIATE Procedure

Variable: PosDiv (PosDiv)

Basic Statistical Measures			
Location		Variability	
Mean	3.437751	Std Deviation	0.59453
Median	3.500000	Variance	0.35346
Mode	3.833333	Range	2.66667
		Interquartile Range	0.66667

Basic Confidence Limits Assuming Normality			
Parameter	Estimate	95% Confidence Limits	
Mean	3.43775	3.30793	3.56757
Std Deviation	0.59453	0.51581	0.70182
Variance	0.35346	0.26606	0.49255

Tests for Location: Mu0=0				
Test	Statistic		p Value	
Student's t	T	52.67951	Pr > |t|	<.0001
Sign	M	41.5	Pr >= |M|	<.0001
Signed Rank	S	1743	Pr >= |S|	<.0001

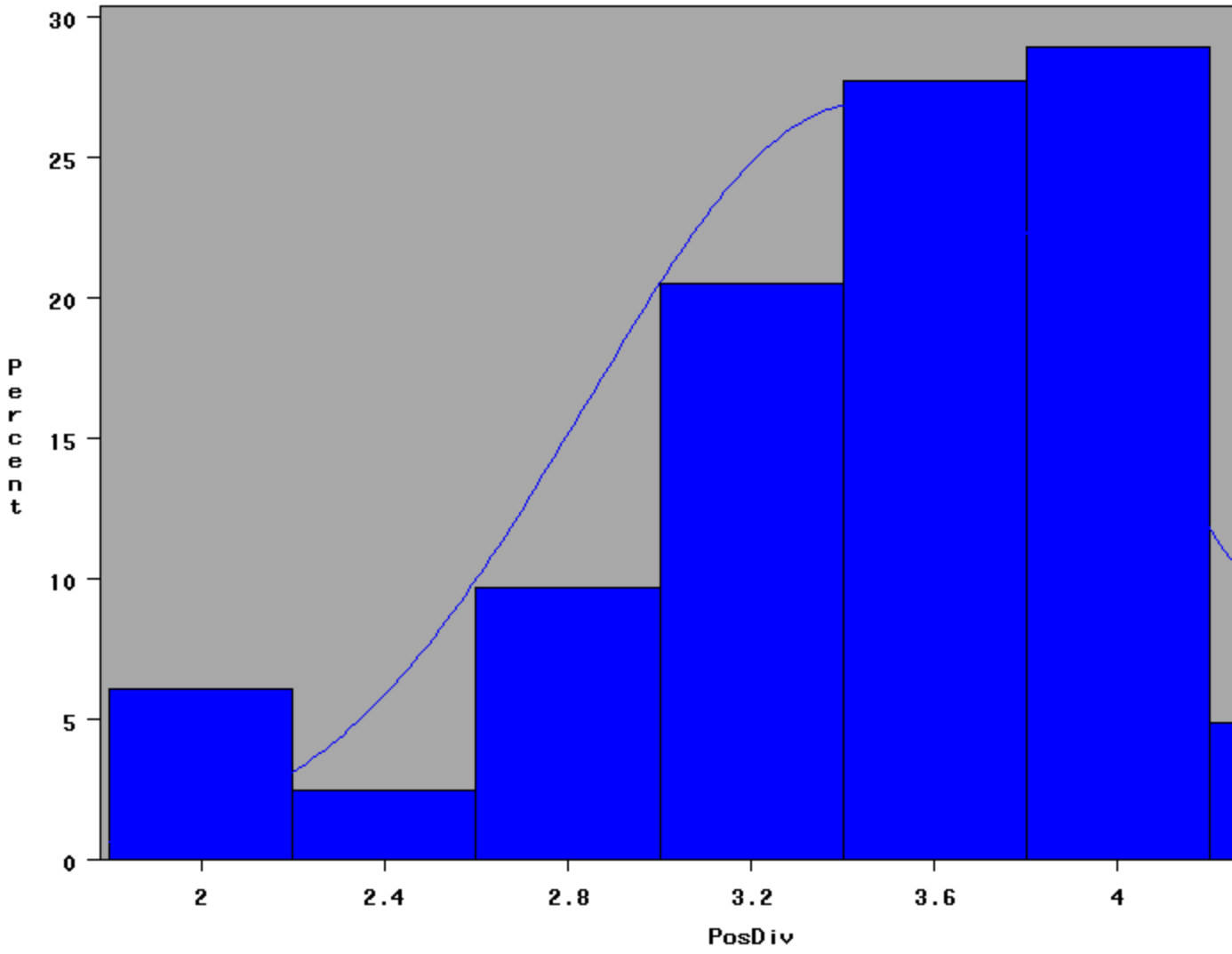
Tests for Normality				
Test	Statistic		p Value	
Shapiro-Wilk	W	0.924496	Pr < W	0.0001
Kolmogorov-Smirnov	D	0.156152	Pr > D	<0.0100
Cramer-von Mises	W-Sq	0.338228	Pr > W-Sq	<0.0050
Anderson-Darling	A-Sq	1.983907	Pr > A-Sq	<0.0050

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Distribution analysis of: PosDiv NegDiv TotBDI

The UNIVARIATE Procedure

Variable: PosDiv (PosDiv)



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Distribution analysis of: PosDiv NegDiv TotBDI

The UNIVARIATE Procedure

Fitted Distribution for PosDiv

Parameters for Normal Distribution		
Parameter	Symbol	Estimate
Mean	Mu	3.437751
Std Dev	Sigma	0.594527

Goodness-of-Fit Tests for Normal Distribution				
Test	Statistic		p Value	
Kolmogorov-Smirnov	D	0.15615223	Pr > D	<0.010
Cramer-von Mises	W-Sq	0.33822821	Pr > W-Sq	<0.005
Anderson-Darling	A-Sq	1.98390738	Pr > A-Sq	<0.005

Quantiles for Normal Distribution		
	Quantile	
Percent	Observed	Estimated
1.0	1.83333	2.05467
5.0	2.00000	2.45984
10.0	2.66667	2.67583
25.0	3.16667	3.03675
50.0	3.50000	3.43775
75.0	3.83333	3.83875
90.0	4.16667	4.19967
95.0	4.16667	4.41566

Quantiles for Normal Distribution		
	Quantile	
Percent	Observed	Estimated
99.0	4.50000	4.82083

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Distribution analysis of: PosDiv NegDiv TotBDI

The UNIVARIATE Procedure

Variable: NegDiv (NegDiv)

Basic Statistical Measures			
Location		Variability	
Mean	1.436747	Std Deviation	0.84675
Median	1.000000	Variance	0.71699
Mode	1.000000	Range	3.62500
		Interquartile Range	0.50000

Basic Confidence Limits Assuming Normality			
Parameter	Estimate	95% Confidence Limits	
Mean	1.43675	1.25185	1.62164
Std Deviation	0.84675	0.73464	0.99956
Variance	0.71699	0.53970	0.99912

Tests for Location: Mu0=0				
Test	Statistic		p Value	
Student's t	T	15.45837	Pr > |t|	<.0001
Sign	M	41.5	Pr >= |M|	<.0001
Signed Rank	S	1743	Pr >= |S|	<.0001

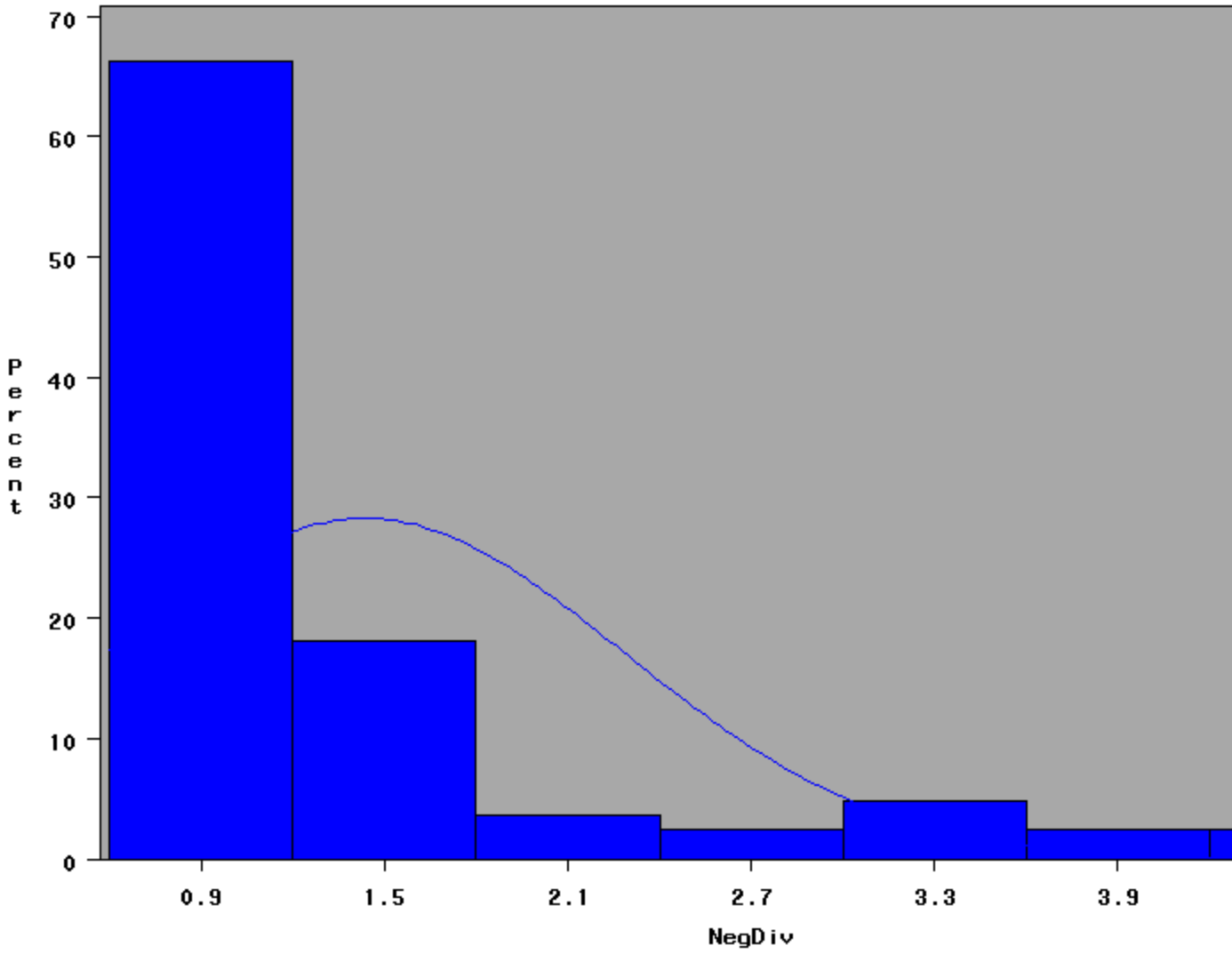
Tests for Normality				
Test	Statistic		p Value	
Shapiro-Wilk	W	0.594139	Pr < W	<0.0001
Kolmogorov-Smirnov	D	0.306277	Pr > D	<0.0100
Cramer-von Mises	W-Sq	2.763142	Pr > W-Sq	<0.0050
Anderson-Darling	A-Sq	14.09019	Pr > A-Sq	<0.0050

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Distribution analysis of: PosDiv NegDiv TotBDI

The UNIVARIATE Procedure

Variable: NegDiv (NegDiv)



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Distribution analysis of: PosDiv NegDiv TotBDI

The UNIVARIATE Procedure

Fitted Distribution for NegDiv

Parameters for Normal Distribution		
Parameter	**Symbol**	**Estimate**
Mean	Mu	1.436747
Std Dev	Sigma	0.846751

Goodness-of-Fit Tests for Normal Distribution				
Test	**Statistic**		**p Value**	
Kolmogorov-Smirnov	**D**	0.3062768	**Pr > D**	<0.010
Cramer-von Mises	**W-Sq**	2.7631424	**Pr > W-Sq**	<0.005
Anderson-Darling	**A-Sq**	14.0901916	**Pr > A-Sq**	<0.005

Quantiles for Normal Distribution		
	Quantile	
Percent	**Observed**	**Estimated**
1.0	0.87500	-0.53309
5.0	1.00000	0.04397
10.0	1.00000	0.35159
25.0	1.00000	0.86562
50.0	1.00000	1.43675
75.0	1.50000	2.00787
90.0	2.87500	2.52190
95.0	3.50000	2.82953

Quantiles for Normal Distribution		
	Quantile	
Percent	Observed	Estimated
99.0	4.50000	3.40658

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Distribution analysis of: PosDiv NegDiv TotBDI

The UNIVARIATE Procedure

Variable: TotBDI (TotBDI)

Basic Statistical Measures			
Location		Variability	
Mean	11.04819	Std Deviation	9.77915
Median	7.00000	Variance	95.63180
Mode	7.00000	Range	42.00000
		Interquartile Range	10.00000

Basic Confidence Limits Assuming Normality			
Parameter	Estimate	95% Confidence Limits	
Mean	11.04819	8.91286	13.18353
Std Deviation	9.77915	8.48437	11.54396
Variance	95.63180	71.98460	133.26295

Tests for Location: Mu0=0				
Test	Statistic		p Value	
Student's t	t	10.2927	Pr > |t|	<.0001
Sign	M	41	Pr >= |M|	<.0001
Signed Rank	S	1701.5	Pr >= |S|	<.0001

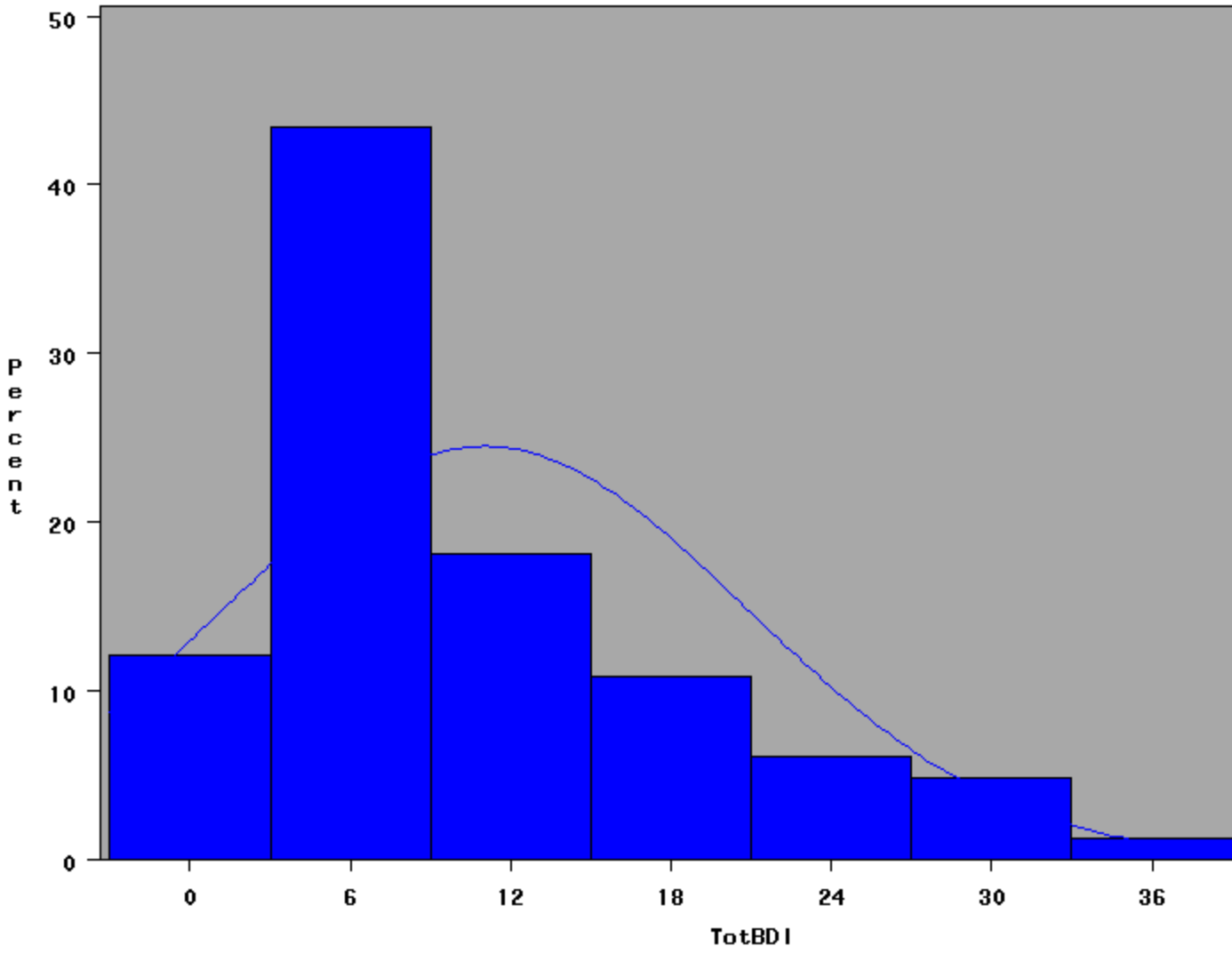
Tests for Normality				
Test	Statistic		p Value	
Shapiro-Wilk	W	0.820557	Pr < W	<0.0001
Kolmogorov-Smirnov	D	0.241475	Pr > D	<0.0100
Cramer-von Mises	W-Sq	0.971594	Pr > W-Sq	<0.0050
Anderson-Darling	A-Sq	5.267762	Pr > A-Sq	<0.0050

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Distribution analysis of: PosDiv NegDiv TotBDI

The UNIVARIATE Procedure

Variable: TotBDI (TotBDI)



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Distribution analysis of: PosDiv NegDiv TotBDI

The UNIVARIATE Procedure

Fitted Distribution for TotBDI

Parameters for Normal Distribution		
Parameter	**Symbol**	**Estimate**
Mean	Mu	11.04819
Std Dev	Sigma	9.779151

Goodness-of-Fit Tests for Normal Distribution				
Test	**Statistic**		**p Value**	
Kolmogorov-Smirnov	**D**	0.24147466	**Pr > D**	<0.010
Cramer-von Mises	**W-Sq**	0.97159409	**Pr > W-Sq**	<0.005
Anderson-Darling	**A-Sq**	5.26776170	**Pr > A-Sq**	<0.005

Quantiles for Normal Distribution		
	Quantile	
Percent	**Observed**	**Estimated**
1.0	0.0000	-11.70151
5.0	2.0000	-5.03708
10.0	2.0000	-1.48429
25.0	5.0000	4.45226
50.0	7.0000	11.04819
75.0	15.0000	17.64413
90.0	26.0000	23.58068
95.0	31.0000	27.13346

Quantiles for Normal Distribution		
	Quantile	
Percent	Observed	Estimated
99.0	42.0000	33.79790

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APPENDIX F: SPEARMAN'S CORRELATIONS BETWEEN NEO-PI-R AND PANSI

The following is a copy of spearman's correlation analysis generated by SAS in order to determine whether a relationship exists between personality as measured by the NEO-PI-R and suicide ideation as measured by the PANSI. In order to investigate the relationship between personality and suicide ideation, correlation and associated levels of statistical significance were computed for each of the five domain scores of the NEO-PI-R and the PANSI NI and PI scores, respectively.

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Correlation analysis of: 'TotNeuro' 'TotExtra' 'TotOpen' 'TotAgree' 'TotConsc' with 'PosDiv' 'NegDiv'

The CORR Procedure

2 With Variables:	PosDiv NegDiv
5 Variables:	TotNeuro TotExtra TotOpen TotAgree TotConsc

Simple Statistics

Variable	N	Mean	Std Dev	Median	Minimum	Maximum	Label
PosDiv	83	3.43775	0.59453	3.50000	1.83333	4.50000	PosDiv
NegDiv	83	1.43675	0.84675	1.00000	0.87500	4.50000	NegDiv
TotNeuro	83	97.36145	23.16830	95.00000	35.00000	160.00000	TotNeuro
TotExtra	83	117.21687	21.02266	121.00000	59.00000	173.00000	TotExtra
TotOpen	83	120.67470	19.64385	120.00000	69.00000	174.00000	TotOpen
TotAgree	83	118.43373	18.06775	121.00000	48.00000	151.00000	TotAgree
TotConsc	83	116.38554	22.85630	119.00000	69.00000	166.00000	TotConsc

Spearman Correlation Coefficients, N = 83
Prob > |r| under H0: Rho=0

	TotNeuro	TotExtra	TotOpen	TotAgree	TotConsc
PosDiv PosDiv	-0.34792 0.0013	0.50448 <.0001	0.15742 0.1552	0.21051 0.0561	0.38235 0.0004
NegDiv NegDiv	0.31860 0.0033	-0.31186 0.0041	-0.07790 0.4839	-0.10381 0.3503	-0.38485 0.0003

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APPENDIX G: SPEARMAN'S CORRELATIONS BETWEEN PANSI AND BDI

The following is a copy of spearman's correlation analysis generated by SAS, in order to assess the degree of the association between depression, as measured by the BDI, and suicide ideation as measured by the PANSI. Hence the correlation and associated levels of statistical significance were computed for the BDI score and PANSI NI score as well as the BDI score and PANSI PI score.

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Correlation analysis of: 'NegDiv' 'PosDiv' with 'TotBDI'

The CORR Procedure

1 With Variables:	TotBDI
2 Variables:	NegDiv PosDiv

Simple Statistics

Variable	N	Mean	Std Dev	Median	Minimum	Maximum	Label
TotBDI	83	11.04819	9.77915	7.00000	0	42.00000	TotBDI
NegDiv	83	1.43675	0.84675	1.00000	0.87500	4.50000	NegDiv
PosDiv	83	3.43775	0.59453	3.50000	1.83333	4.50000	PosDiv

Spearman Correlation Coefficients, N = 83
Prob > |r| under H0: Rho=0

	NegDiv	PosDiv
TotBDI	0.61170	-0.45861
TotBDI	<.0001	<.0001

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APPENDIX H: SPEARMAN'S CORRELATIONS BETWEEN NEO-PI-R AND BDI

The following is a copy of correlation analysis generated by SAS, in order to assess the degree of the association between depression, as measured by the BDI, and personality as measured by the NEO-PI-R. Hence the correlation and associated levels of statistical significance were computed for each of the five domain scores of the NEO-PI-R and BDI score, respectively.

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Correlation analysis of: 'TotNeuro' 'TotExtra' 'TotOpen' 'TotAgree' 'TotConsc' with 'TotBDI'

The CORR Procedure

1 With Variables:	TotBDI
5 Variables:	TotNeuro TotExtra TotOpen TotAgree TotConsc

Simple Statistics

Variable	N	Mean	Std Dev	Median	Minimum	Maximum	Label
TotBDI	83	11.04819	9.77915	7.00000	0	42.00000	TotBDI
TotNeuro	83	97.36145	23.16830	95.00000	35.00000	160.00000	TotNeuro
TotExtra	83	117.21687	21.02266	121.00000	59.00000	173.00000	TotExtra
TotOpen	83	120.67470	19.64385	120.00000	69.00000	174.00000	TotOpen
TotAgree	83	118.43373	18.06775	121.00000	48.00000	151.00000	TotAgree
TotConsc	83	116.38554	22.85630	119.00000	69.00000	166.00000	TotConsc

Spearman Correlation Coefficients, N = 83
Prob > |r| under H0: Rho=0

	TotNeuro	TotExtra	TotOpen	TotAgree	TotConsc
TotBDI	0.57458	-0.39718	0.00684	-0.12074	-0.47421
TotBDI	<.0001	0.0002	0.9510	0.2769	<.0001

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APPENDIX I: SPEARMAN'S PARTIAL CORRELATION

The following is a copy of the spearman's partial correlation analysis generated by SAS, in order to assess the degree of the association between personality as measured by the NEO-PI-R and suicide ideation as measured by the PANSI, after depression as measured by the BDI, is factored out. Hence, partial correlations and associated level of statistical significance were computed for each of the five domain scores of the NEO-PI-R, and the PANSI NI scores and PI scores with the BDI score partialled out. This analysis allows for the resultant correlations between the NEO-PI-R domain scores and the PANSI NI and PI scores respectively, to be independent of the influence of BDI performance.

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Correlation analysis of: 'TotNeuro' 'TotExtra' 'TotOpen' 'TotAgree' 'TotConsc' with 'PosDiv' 'NegDiv'

The CORR Procedure

1 Partial Variables:	TotBDI
2 With Variables:	PosDiv NegDiv
5 Variables:	TotNeuro TotExtra TotOpen TotAgree TotConsc

Simple Statistics

Variable	N	Mean	Std Dev	Median	Minimum	Maximum	Partial Variance	Partial Std Dev	Label
TotBDI	83	11.04819	9.77915	7.00000	0	42.00000			TotBDI
PosDiv	83	3.43775	0.59453	3.50000	1.83333	4.50000	0.23344	0.48316	PosDiv
NegDiv	83	1.43675	0.84675	1.00000	0.87500	4.50000	0.31975	0.56547	NegDiv
TotNeuro	83	97.36145	23.16830	95.00000	35.00000	160.00000	359.03216	18.94814	TotNeuro
TotExtra	83	117.21687	21.02266	121.00000	59.00000	173.00000	345.99813	18.60102	TotExtra
TotOpen	83	120.67470	19.64385	120.00000	69.00000	174.00000	388.76834	19.71721	TotOpen

Simple Statistics									
Variable	N	Mean	Std Dev	Median	Minimum	Maximum	Partial Variance	Partial Std Dev	Label
TotAgree	83	118.43373	18.06775	121.00000	48.00000	151.00000	322.24142	17.95108	TotAgree
TotConsc	83	116.38554	22.85630	119.00000	69.00000	166.00000	388.34056	19.70636	TotConsc

Spearman Partial Correlation Coefficients, N = 83 Prob > |r| under H0: Partial Rho=0					
	TotNeuro	TotExtra	TotOpen	TotAgree	TotConsc
PosDiv PosDiv	-0.11607 0.2991	0.39524 0.0002	0.18068 0.1043	0.17586 0.1140	0.21074 0.0574
NegDiv NegDiv	-0.05077 0.6505	-0.09491 0.3963	-0.10377 0.3535	-0.03814 0.7337	-0.13608 0.2228

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