

Suicide ideation in the South African Police Service



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Little information exists regarding the suicide ideation of uniformed members of the South African Police Service (SAPS). The objectives of this study were to determine the level of suicide ideation of police members and to determine the differences between the suicide ideation of various demographic groups. A cross-sectional survey design was used. Stratified random samples ($N = 1781$) were taken of police members of eight provinces in South Africa. The Adult Suicide Ideation Questionnaire and a biographical questionnaire were administered. The results indicated that 8.30% of the sample showed a high level of suicide ideation. Multiway frequency analyses showed that the observed frequencies of high suicide ideation (compared with low suicide ideation), statistically, were significantly higher than the expected frequencies in groups based on race, rank, gender, province, alcohol consumption, educational qualifications, medical problems and previous suicide attempts.

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Law enforcement is one of the most stressful occupations worldwide (Anshel, 2000). In South Africa, various potential stressors, such as high crime levels, organisational transformation and a lack of resources challenge members of the police services. Not surprisingly, increased rates of illness, post-traumatic stress, burnout, alcohol abuse and suicides, as well as decreased levels of job satisfaction and job performance, as compared to norms for the general population, are found in research on members of the police (Anshel, 2000; Nel, 1994; Rothmann & Agathagelou, 2000; Rothmann & Strijdom, 2002).

Suicide among members of the police has been described as an epidemic (Violanti, 1996). Studies report that police officers have higher suicide rates compared to the rates of the general population and those of other professions (Helmkamp, 1996). Increasing suicide rates of police officers in recent years have also been reported for the United States (Violanti, 1995) and Australia (Cantor, Tyman & Slater, 1995). Schmidtke, Fricke and Lester (1999) reported an average suicide rate of 23.03 per 100 000 police officers in Germany in 1996. The average suicide rate for New York City police officers is about 29 per 100 000 per year (Vallone, 1995). Lindsay and Lester (2001) report an average annual suicide rate for North Eastern American police officers of 25 per 100 000 for the period 1987 to 1999.

An analysis of the suicide rates per 100 000 members of the South African Police Service (SAPS) from 1994 to 2000 shows that suicides decreased from 200 in 1995 to 110 in 1999. However, since 1999 the suicide rate has shown an increase to 130 in 2000. According to Rossouw (1997, 1998, 1999), the SAPS member who is likely to commit suicide is an unmarried black or Indian male constable of between 24 and 29 years of age. More than 80% of the suicides in 1999 were committed with the use of a service weapon (Rossouw, 1999). The risk areas seem to be the Northern Cape, Mpumalanga, the North West Province and Gauteng (Masuku, 2000).

According to Reynolds (1991a), suicidal behaviour can be plotted on a continuum varying in severity from ideation to intent, attempt and completion. Therefore, suicide ideation constitutes one aspect of suicidal behaviour (Reynolds, 1991a). Research on suicide ideation could be viewed as an important and critical component in evaluating and promoting adult mental health. A strong association exists between suicide ideation and suicide (Jin & Zhang, 1998). Maris, Berman, Maltsberger and Yufit (1991) found suicide ideation and prior suicide attempts to rank third and fourth, respectively, among the 15 most common single predictors of suicide.

Suicide ideation, which refers to thoughts and cognitions about suicide, may be considered an early marker of more serious suicidal behaviour (Bonner & Rich, 1987; Reynolds, 1991a; Shea, 1998). Suicide ideation may be characterised as ranging from relatively mild, general thoughts and wishes that one were dead to serious ideation about specific plans and means of taking one's life. Reynolds (1991a) defines suicide ideation as the domain of thoughts and ideas about death, suicide and serious self-injurious behaviour, and includes thoughts related to the planning, conduct and outcome of suicidal behaviour, particularly as the last-mentioned relates to thoughts about the response of others. Individuals measuring high on suicide ideation wish they had never been born, feel life is not worth living, wish they were dead and think that others would realise their worth when they are dead. They have thoughts of killing themselves as well as thoughts on the specific methods they can use and times or places at which to kill themselves. Schotte and Clum (1982), as well as Bonner and Rich (1987) found a relationship between the frequency of suicide ideation and the likelihood of attempts at suicide. The study of suicide ideation is consistent with a cognitive-behavioural focus.

Only two studies on suicide ideation of police members have been conducted in one of the nine provinces of South Africa (*viz.*, the North West Province) (see Rothmann & Strijdom, 2002; Rothmann & van Rensburg, 2001). These studies showed that 10.58% of the uniformed police members showed significant levels of suicide ideation. The literature regarding suicide ideation in police populations is sparse (Janik & Kravitz, 1994; Lennings, 1995) and South Africa is certainly no exception. Hem, Berg and Ekeberg (2001) recommended that suicide ideation be investigated in police populations.

Since no information regarding the suicide ideation of police members is available for South Africa, the information gathered in this study can make a valuable contribution to the understanding, prevention and management of suicidal behaviour of SAPS members. It would also be significant to study variations in suicide ideation between provinces and cultural groups, and at different levels of the organisational hierarchy. The objectives of this study were to determine national levels of suicide ideation, variations between provinces and differences in suicide ideation among various demographic groups. This research can thus contribute to an understanding of police suicide, by virtue of studying this phenomenon within a multicultural context and in a different sociocultural context from previous studies.

DEMOGRAPHIC VARIABLES AND SUICIDE IDEATION

Available studies of suicide ideation suggest a variety of risk factors, most of which have been identified in previous research on suicidal behaviour and deaths (Vilhjalmsson, Kristjansdottir & Sveinbjarnardottir, 1998). Suicide ideation appears to be unrelated to gender (Friedman, Asnis, Boeck & DiFiore, 1987; Sorenson & Rutter, 1991) and educational attainment (Kinkel, Bailey & Josef, 1988). Sorenson and Rutter (1991) found that unmarried and younger individuals (compared with married and older individuals) showed higher levels of suicide ideation. Higher levels of suicide ideation have been shown for those who are depressed, dissatisfied, pessimistic, and who experience a sense of hopelessness (Breslau, 1992; Kandel, Raveis & Davies, 1991; Kinkel et al., 1988; Smith & Crawford, 1986; Sorenson & Rutter, 1991) and frequent pains, such as stomach pain, headaches and migraines (Breslau, 1992; Ingersoll, Grizzle, Beiter & Orr, 1993). Individuals who abuse alcohol or drugs also show higher levels of suicide ideation (Slap, Vorters, Chaudhuri & Centor, 1989; Smith & Crawford, 1986; Sorenson & Rutter, 1991; Topol & Reznikoff, 1982). Several other studies reported that respondents who scored high on suicide ideation were more likely to have poor health (De Man & Leduc, 1995; Kandel et al., 1991; Lewinsohn, Rohde & Seeley, 1994).

Janik and Kravitz (1994) found that marital problems and job suspension were important contributing factors to police officers' decisions to attempt suicide. Supportive families can buffer and diminish the occupational stresses that police officers experience (Graf, 1986). Alcohol abuse accelerates their isolation from both family

and administrative relationships. Generally, most studies predict a life-long suicide rate of 15% for alcoholics. Approximately 80% of those attempting suicide were drinking alcohol at the time (McCafferty, McCafferty & McCafferty, 1992).

Anshel (2000) states that alcohol or drug intake might serve as a means of coping with stress, but that it is not effective. Evens and Coman (1992) found a tendency towards ineffective coping among police officers who reported being unsentimental and emotionally detached, and who refused to share their emotional reactions to job stressors with others, such as their partners or families. Burke (1993) found that alcohol, drug and tobacco use constitutes methods of coping with job-related stress among police officers. Research by Hageman (1978) has shown that non-coping with stressors in the work environment may be related to suicide ideation.

An Interpol (2000) report indicates that South Africa measures unacceptably high with regard to violence (e.g. murder, rape, robbery and assault) when compared with the 90 other countries listed in the report. Nearly 60% of reported serious crime in South Africa are made up of theft (23.1%), assault (20.1%) and housebreaking, both at residential and business premises (15.7%) (SAPS, 2001). Provincial differences occur in the prevalence of crime, for example, high to moderate levels of assault are reported in the Diamondfield, Southern Free State, Karoo, Uitenhage and Port Elizabeth areas. The Diamondfield, Southern Free State and Karoo areas, however, do not show high murder levels. In contrast, the Durban North and South, Midlands, Tugela and Umfolozi areas of KwaZulu-Natal, and the East London and Queenstown areas show low levels of assault, but high murder rates. Murder rates are very high to moderate in Johannesburg and its surrounding areas, namely, Soweto, Vaalrand, East Rand, North Rand, as well as in the Cape Town metropolitan area. The highest levels of robbery and motor vehicle theft occur in three metropolitan areas, namely Gauteng, Greater Durban and Greater Cape Town. Therefore, geographical differences in the levels of stress and suicide ideation police members could result (Biggam, Power, MacDonald, Carcary & Moodie, 1997).

METHOD

Research design

A cross-sectional survey design, by means of which a sample is drawn from a population at a particular moment (Shaughnessy & Zechmeister, 1997), was used to achieve the research objectives.

Participants

Random samples ($N = 1781$) were drawn from police stations in the Limpopo Province ($n = 168$), Gauteng ($n = 213$), Mpumalanga ($n = 173$), Free State ($n = 290$), Northern Cape ($n = 188$), Western Cape ($n = 307$), Eastern Cape ($n = 249$) and KwaZulu-Natal ($n = 193$). Stations were divided into the following categories: small (fewer than 25

staff members), medium (25 to 100 staff members) and large (more than 100 staff members). All police members in randomly identified small stations ($n = 568$) and medium stations ($n = 655$) in each of the provinces were asked to complete the research questionnaire. In the large stations, stratified random samples ($n = 558$) were selected according to sex and race. Table 1 presents some of the demographic characteristics of the participants.

Table 1. Demographic characteristics of the participants (N = 1781)

Item	Category	Percentage
Race	White	39.60
	Black	40.30
	Coloured	16.30
	Indian	3.80
Rank	Constable	6.80
	Sergeant	20.60
	Inspector	50.70
	Captain; Superintendent and Senior Superintendent	22.00
Level of Education	Grade 10 (Standard 8)	10.50
	Grade 11 (Standard 9)	5.20
	Grade 12 (Standard 10)	56.40
	Technical college diploma	2.80
	Diploma/Degree	25.20
Sex	Male	81.90
	Female	18.10
Years' work experience in the SAPS	1 year or less	0.90
	1.01 to 3 years	3.50
	3.01 to 5 years	2.60
	More than 5 years	93.00
Years in current position	1 year or less	3.90
	1.01 to 3 years	37.80
	3.01 to 5 years	28.20
	More than 5 years	30.10
Age	18 to 25	3.20
	26 to 30	23.90
	31 to 35	33.10
	36 to 40	23.60
	41 to 45	10.10
	46+	6.10

Table 1 shows that 81.90% of the sample consisted of males. The sample was mostly made up of black and white police members (together, 79.90% of the total sample). Inspectors constituted just over half of the sample (50.70%). Most respondents had more than five years of service in the SAPS, and have spent more than three years in their current position. Most participants were in the 31- to 35-years-of-age cohort (33.10%).

Information was also gathered regarding the health-inhibiting and health-facilitating behaviours of participants. The biographical questionnaire enquired about the presence of medical conditions that might affect work performance, exercise behaviour, tobacco and alcohol use and previous suicide attempts. The information gathered from these questions is reported in Table 2.

Table 2. Health behaviours of the participants

Item	Category	Percentage
Do you suffer from a medical condition	Yes	14.10
	No	85.90
How many days per week do you exercise	0	36.90
	1	13.10
	2	20.30
	3	25.50
	4	7.20
	5	4.80
	6	1.10
	7	1.10
Alcohol consumption	0–4 drinks per week	67.60
	5–7 drinks per week	16.70
	8–14 drinks per week	7.60
	15 or more drinks per week	8.10
Cigarette smoke	Yes	36.60
	No	63.40
Previous attempt at suicide	Yes	4.30
	No	95.70

A total of 36.90% of the participants indicated that they did not exercise at all, while an additional 13.10% indicated that they exercised only once a week. A total of 15.70% of participants indicated that they took more than eight alcoholic drinks per week. More than 4% of the participants had attempted suicide previously.

Measuring instruments

Two questionnaires were used to gather data for this study, namely, the Adult Suicide Ideation Questionnaire (Reynolds, 1991a) and a questionnaire to gather biographical information.

The Adult Suicide Ideation Questionnaire (ASIQ) (Reynolds, 1991a) was used to measure participants' current level of suicide ideation. Each of the items measures a specific suicidal behaviour or thought. Reynolds (1991a) reported that the internal consistency (alpha coefficient) of the ASIQ is 0.96, while Osman et al. (1999) found an alpha coefficient of 0.98. The test-retest reliability of the ASIQ varies between 0.86 and 0.95 (Reynolds, 1991b). Reynolds (1991a) provided evidence for the content, construct and criterion-related validity of the ASIQ. Osman et al. (1999) found that the ASIQ differentiated significantly between attempted suicide and psychiatric control groups. In the North West Province, the ASIQ had internal consistencies of 0.98 and 0.95 for white and black police members, respectively (Rothmann & Strijdom, 2002; Rothmann & van Rensburg, 2001).

A *demographic questionnaire* was developed to gather information about the demographic characteristics of the participants. This questionnaire gave participants the option of supplying their name and service number. Other information that was gathered included: province, age, gender, years of service, years in current position, educational qualifications, marital status, presence of medical conditions, number of alcoholic drinks consumed per week, smoking behaviour, exercise behaviour and history of previous suicide attempts.

Statistical analysis

The statistical analysis was carried out using SAS 9.1 (SAS Institute, 2002). Cronbach alpha coefficients, inter-item correlation coefficients and exploratory factor analysis were used to establish the reliability and aspects of the validity of the ASIQ (Clark & Watson, 1995). Descriptive statistics (e.g., means, standard deviations, skewness and kurtosis) and inferential statistics were used to analyse the data. Statistical significance was set at $p < 0.05$.

A hierarchical log-linear analysis in SPSS 12 for Windows (SPSS Inc., 2003) was used to determine differences between the high and low suicide ideation groups in the sample. To prepare the data for log-linear analysis, the sample was split into two groups, namely a high suicide ideation group ($n = 147$) and a low suicide ideation group ($n = 1634$). A score above 31 on the ASIQ could be interpreted as a high score (i.e., above the 97th percentile) (Reynolds, 1991a). Expected frequencies of low and high suicide ideation were computed for each cell (of a specific demographic variable), and the deviation between expected and observed frequencies in each cell (the residual) was used to assess the adequacy of the model for fitting the observed frequency in that cell. Rather than trying to interpret raw differences, residuals were standardised by dividing the difference between observed and expected frequencies by the square root of the expected frequency to produce a z -value (Tabachnick & Fidell, 2001).

Ethics

The SAPS provided ethical clearance for the study. Participants were approached in their work situation and the objectives of the study were explained. Participation was

voluntary and anonymous. Participants were given the choice to receive feedback from the study. If they preferred to receive feedback, an identification code was allocated. Participants were assured that individual results were confidential.

RESULTS

Descriptive statistics and factor analysis

First, the descriptive statistics of the 25 items of the ASIQ were analysed. The Shapiro-Wilk test for skewness resulted in values larger than two ($p < 0.01$) for all 25 items. Therefore, scores on the items of the ASIQ were transformed by using a formula to normalise substantially positively skew scores, namely, $\log_{10}(X + C)$, where X = item score and C = constant added to each score, so that the smallest score is 1 (Tabachnick & Fidell, 2001). Principal components extraction was used to estimate the number of factors, using the 25 transformed item scores of the ASIQ as input. Only one factor with an eigenvalue larger than one (eigenvalue = 15.18) was extracted. All 25 items loaded on a single factor (labelled *suicide ideation*), which explained 60.71% of the total variance in the ASIQ scores. The alpha coefficient for the ASIQ was 0.97, which is acceptable compared to the guideline of $\alpha > 0.70$ (Nunnally & Bernstein, 1994). The mean inter-item correlation coefficient for the ASIQ was 0.58, which is higher than the guideline of 0.50 (Clark & Watson, 1995).

Differences in suicide ideation for different demographic groups

Next, a hierarchical log-linear analysis was used to determine differences between the high suicide ideation group ($n = 147$) and the low suicide ideation group ($n = 1634$). Table 3 reports the goodness-of-fit statistics of suicide ideation in different demographic groups. Table 3 shows that statistically significant differences for high and low suicide ideation groups exist in terms of race, rank, the province the police officer is based in, gender, the use of alcohol, educational level, the presence of a medical condition and a previous suicide attempt.

Regarding *race*, the black and Indian groups (compared with whites and coloureds) showed higher than expected frequencies in the high suicide ideation group. In the black group, the observed frequency was nine more than the expected frequency ($z = 1.15$), while in the Indian group, the observed frequency was five more than the expected frequency ($z = 1.99$). As far as *rank* is concerned, constables and sergeants (compared with higher ranks) showed higher than the expected frequencies. In the constable group, the observed frequency was five more than the expected frequency ($z = 1.59$), while in the sergeant group, the observed frequency was 13 more than the expected frequency ($z = 2.33$). The analysis revealed that the observed frequencies of black police members (compared with other race groups), statistically were significantly ($\chi^2 = 50.46$, $df = 9$, $p < 0.01$) higher in the constable rank ($z = 2.89$) and

Table 3. Goodness-of-fit statistics of suicide ideation in different demographic groups

Variable	Likelihood Ratio χ^2	df	p
Race	7.52	3	0.05*
Rank	11.35	3	0.01*
Province	40.93	3	0.00*
Sex	9.03	1	0.00*
Alcohol	15.31	3	0.00*
Medical	8.13	1	0.00*
Previous attempt	52.08	1	0.00*
Education	19.24	6	0.00*
Status	1.70	4	0.79
Age	4.63	5	0.46
Years in position	2.28	3	0.52
Years experience	3.02	3	0.38
Size	3.08	2	0.21

Note: * Statistically significant – $p < 0.05$

lower in the inspector rank ($z = -2.18$), which suggests an interaction between race and rank. Also, these police members had lower qualifications ($\chi^2 = 136.79$, $df = 18$, $p < 0.01$).

As far as *province* is concerned, the Limpopo, Gauteng and Free State provinces (compared with other provinces) showed higher than the expected frequencies of high suicide ideation. In Limpopo ($z = 0.84$), Gauteng ($z = 1.05$) and Free State ($z = 4.51$), the observed frequencies were three, four and twenty-two more than the expected frequencies respectively. Regarding *gender*, males (compared with females) showed higher than expected frequencies of high suicide ideation. In the male group, the observed frequency was 12 more than the expected frequency ($z = 1.14$).

Higher *alcohol consumption* was related to suicide ideation. Higher observed than expected counts were found in the high suicide ideation category for those who take 8 to 14 drinks per week ($z = 2.96$; nine police officers more than expected were observed) and 15 or more drinks per week ($z = 2.06$; seven police officers more than expected were observed).

As far as *educational qualifications* are concerned, police members with Grade 12 or lower (compared with those with diplomas or degrees) showed higher than expected

frequencies of high suicide ideation. For Grade 10 and lower ($z = 1.69$), Grade 11 ($z = 0.87$), and Grade 12 ($z = 1.18$) the observed frequencies were seven, two and eleven more than the expected frequencies, respectively.

Police officers who indicated that they suffer from a *medical condition* that might affect their performance in the SAPS showed higher than expected frequencies in the high suicide ideation group ($z = 2.69$; 12 police officers more than expected were observed). Lastly, officers who have made a *previous suicide attempt* were overrepresented in the high suicide ideation category ($z = 8.70$; 22 police officers more than expected were observed).

Table 3 shows that no statistically significant differences were found in terms of the marital status, age, years in service of the SAPS, years in the particular position and the size of the station of the high and low suicide ideation groups.

DISCUSSION

The objectives of this study were to assess the level of suicide ideation of police members and to determine the differences between the suicide ideation of various demographic groups. This study shows a lower level of suicide ideation in the SAPS at a national level than what was previously reported for the North West Province (8.30% vs. 10.58%) (Rothmann & Strijdom, 2002; Rothmann & van Rensburg, 2001). The results showed that police officers who measured high on suicide ideation differed from those who measured low in terms of race, rank, gender and province, educational level, the use of alcohol, the presence of a medical condition and a previous suicide attempt.

It seems that black and Indian police members are more inclined towards suicide ideation. Furthermore, in the black group, the police members who measured high on suicide ideation had the rank of constable or sergeant and had educational qualifications lower than Grade 12. Police officers in the lowest education categories also showed higher-than-expected counts in the high suicide ideation group. Kebede and Alem (1999) previously found suicide ideation related to a lower educational level in an African sample.

Police members with the rank of constable and sergeant (especially those with lower qualifications) might find it difficult to cope with the conditions in the SAPS, which is a conflict-prone organisation, perhaps because of the transformation that is taking place. These police members probably lack alternative employment opportunities as well as opportunities for advancement (Pienaar & Rothmann, 2003). Adding to the conflict-prone nature of the SAPS is the fact that communities, and especially black communities, often distrust the police (Kleyn, Rothmann & Jackson, 2004). This lack of trust could be attributed to acts of the police during the apartheid period. Secondly, these police officers are often burdened with the operational level of policing, and as such are exposed to scenes of violence and crime. The combination of all these factors might contribute to depression, anxiety, negative mood states and suicide ideation (Stokols, 2003).

Provinces that might be the focus of more concentrated suicide prevention include Gauteng, Limpopo and the Free State. The Free State should be regarded as a first priority for suicide prevention programmes, because 22 police members more than expected were observed in the high suicide ideation group. In 2000, Rossouw identified the Free State, North West Province, Northern Cape and Eastern Cape as areas requiring attention regarding suicide. Collectively, these results indicate that suicidal behaviour in the SAPS is indeed an issue with national relevance. However, provinces with the highest levels of suicide ideation might be the primary focus of interventions, since suicide ideation predicts suicide attempts (Bonner & Rich, 1987; Reynolds, 1991a; Shea, 1998).

Higher alcohol consumption also meant higher observed than expected counts in the high suicide ideation category. This finding confirms the results of Slap et al. (1989), Smith and Crawford (1986), Sorenson and Rutter (1991), and Topol and Reznikoff (1982). Police officers have in instances been regarded as 'symptomatic' drinkers, who use alcohol for the relief of psychological strain (Anshel, 2000; Burke, 1993). This is often associated with marital problems and job suspension (Janik & Kravitz, 1994). This presents an important point of intervention for the organisation's Employee Assistance Programme, which could be utilised to make police officers more aware of the negative physiological and psychological consequences of increased alcohol use, and the teaching of more effective coping skills.

Those police officers who indicated that they suffer from a medical condition, which they felt might be affecting their performance in the SAPS, showed higher-than-expected frequencies in the high suicide ideation group. Officers who had previously attempted suicide were over-represented in the high suicide ideation category. This finding confirms Jin and Zhang (1998) and Maris et al.'s (1991) results, namely, that suicide ideation predicts suicide attempts.

Although this study goes some way towards addressing the lacunae in police suicide ideation research identified in the literature (Hem et al., 2001; Janik & Kravitz, 1994; Lennings, 1995), it does have certain limitations. The limitations of this study include that it was done in a single occupational group, namely, police officers, which does not allow for generalisations to other occupations regarding suicide ideation to be made. Self-report measures and the cross-sectional survey design are further limitations.

RECOMMENDATIONS

The relationship between post-traumatic stress and suicide ideation on the part of constables and sergeants is an avenue that might be explored fruitfully in future research. Since these ranks show the highest levels of suicide ideation and are the most visible line of policing, interesting relationships could exist.

The SAPS should target specific groups in their suicide-prevention programme. However, it is necessary to generate information about the possible reasons for higher suicide ideation. More specifically, the reasons for high suicide ideation in groups

such as blacks and Indians and constables and sergeants should be investigated. Variability due to gender, the use of alcohol, the presence of a medical condition and a previous suicide attempt have been well established in the literature. However, this research points to the need to study the effects of geographical location (as indicated in this research by province) and educational attainment. Qualitative research should be conducted to understand the issues surrounding attempted suicides. Interviews with spouses, relatives, friends and colleagues of completed suicides could be used to explore the reasons for suicide. For the SAPS, it is recommended that the current suicide prevention programme be reviewed to ensure that it addresses all members at all levels within the organisation equally.

Future research on suicide ideation on the part of police members should aim at longitudinal and intervention studies, in order for clear pathways to suicide ideation to be identified. The relationship between suicide ideation and suicide should also be researched by employing a longitudinal research design.

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REFERENCES

- Anshel, M. H. (2000). A conceptual model and implications for coping with stressful events in police work. *Criminal Justice and Behavior*, 27, 375–400.
- Biggam, F. H., Power, K. G., MacDonald, R. R., Carcary, W. B. and Moodie, E. (1997). Self-perceived occupational distress in a Scottish police force. *Work & Stress*, 11, 118–133.
- Bonner, R. L. and Rich, A. R. (1987). Toward a predictive model of suicide ideation and behavior: Some preliminary data in college students. *Suicide and Life-Threatening Behavior*, 17, 50–63.
- Breslau, N. (1992). Migraine, suicide ideation, and suicide attempts. *Neurology*, 42, 392–395.
- Burke, R. J. (1993). Work-family stress, conflict, coping and burnout in police officers. *Stress Medicine*, 9, 181–180.
- Cantor, C. H., Tyman, R. and Slater, P. J. (1995). A historical survey of police suicide in Queensland, Australia, 1843–1992. *Suicide and Life-Threatening Behavior*, 25, 499–507.
- Clark, L. A. and Watson, D. (1995). Construct validity: Basic issues in objective scale development. *Psychological Assessment*, 7, 309–319.
- de Man, A. F. and Leduc, C. P. (1995). Suicide ideation in high school students: Depression and other correlates. *Journal of Clinical Psychology*, 51, 173–181.
- Evens, B. and Coman, G. J. (1992). General versus specific measures of occupational stress: An Australian police survey. *Stress Medicine*, 9, 11–20.
- Friedman, J. M. H., Asnis, G. M., Boeck, M. and DiFiore, J. (1987). Prevalence of specific suicidal behaviors in a high school sample. *American Journal of Psychiatry*, 144, 1203–1206.

- Graf, F. A. (1986). The relationship between social support and occupational stress among police officers. *Journal of Police Science and Administration*, 14, 178–186.
- Hageman, M. J. C. (1978). Occupational stress and marital relationships. *Journal of Police Science and Administration*, 6, 402–411.
- Helmkamp, J. C. (1996). Occupation and suicide among males in the US Armed Forces. *Annals of Epidemiology*, 6, 83–88.
- Hem, E., Berg, A. M. and Ekeberg, Ø. (2001). Suicide in police: A critical review. *Suicide and Life-Threatening Behavior*, 31, 224–233.
- Ingersoll, G. M., Grizzle, K., Beiter, M. and Orr, D. P. (1993). Frequent somatic complaints and psychosocial risk in adolescents. *Journal of Early Adolescence*, 13, 67–78.
- Interpol (2000). *International crime statistics*. Lyon: Authors
- Janik, J. and Kravitz, H. M. (1994). Linking work and domestic problems with police suicide. *Suicide and Life-Threatening Behavior*, 24, 267–274.
- Jin, S. and Zhang, J. (1998). The effects of physical and psychological well-being on suicide ideation. *Journal of Clinical Psychology*, 54, 401–413.
- Kandel, D. B., Raveis, V. H. and Davies, M. (1991). Suicide ideation in adolescence: depression, substance use, and other risk factors. *Journal of Youth and Adolescence*, 20, 289–308.
- Kebede, D. and Alem, A. (1999). Suicide attempts and ideation among adults in Addis Ababa, Ethiopia. *Acta Psychiatrica Scandinavia*, 100, 35–39.
- Kinkel, R. J., Bailey, C. W. and Josef, N. C. (1988). *Suicide ideation in normal adolescents*. University of Michigan: Flint.
- Kleyn, E., Rothmann, S. and Jackson, L. T. B. (2004). Expectations and satisfaction with the South African Police Service in the Rustenburg area. *South African Journal of Industrial Psychology*, 30(1), 37–45.
- Lennings, C. J. (1995). Suicide ideation risk factors in police officers and justice students. *Police Studies*, 18, 39–52.
- Lewinsohn, P. M., Rohde, P. and Seeley, J. R. (1994). Psychosocial risk factors for future adolescent suicide attempts. *Journal of Consulting and Clinical Psychology*, 62, 297–305.
- Lindsay, M. S. and Lester, D. (2001). Suicide in a Northeastern police department. *Psychological Reports*, 88, 226.
- Maris, R. W., Berman, A. L., Maltzberger, J. T. and Yufit, R. I. (1991). *Assessment and prediction of suicide*. New York: Guilford.
- Masuku, S. (2000). *Forbidden subject: Suicide among SAPS officials*. Nedbank Institute for Security Studies Crime Index, 4(5). <http://www.iss.co.za/Pubs/Crime>. Accessed on 10 March 2003.
- McCafferty, F. L., McCafferty, E. and McCafferty, M. A. (1992). Stress and suicide in police officers: Paradigm of occupational stress. *Southern Medical Journal*, 85, 233–243.
- Nel, J. (1994). A contextual approach to post-shooting trauma in the South African Police Service. Unpublished master's dissertation, Rand Afrikaans University, Johannesburg.
- Nunnally, J. and Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). New York: McGraw-Hill.
- Osman, A., Kopper, B. A., Linehan, M. M., Barrios, F. X., Gutierrez, P. M. and Bagge, C. L. (1999). Validation of the Suicide Ideation Questionnaire and the Response for

- Living Inventory in an adult psychiatric inpatient sample. *Psychological Assessment*, 11, 115–123.
- Pienaar, J. and Rothmann, S. (2003, September). Job stress in the South African Police Service. Paper presented at the 15th Conference of the South African Institute for Management Scientists, Potchefstroom.
- Reynolds, W. M. (1991a). *Adult Suicide Ideation Questionnaire: Professional Manual*. Odessa, FL: Psychological Assessment Resources.
- (1991b). Psychometric characteristics of the Adult Suicide Ideation Questionnaire with college students. *Journal of Personality Assessment*, 56, 289–307.
- Rossouw, L. (1997). *Police suicide: Research findings – 1994 to 1997*. Pretoria: South African Police Service.
- (1998). *Police suicide: Annual report – 1998*. Pretoria: South African Police Service.
- (1999). *Police suicide: Annual report – 1999*. Pretoria: South African Police Service.
- (2000). *Police Suicide: Annual Report – 2000*. Pretoria: South African Police Services.
- Rothmann, S. and Agathagelou, A. M. (2000). Die verband tussen lokus van beheer en werks-tevredenheid by senior polisiepersoneel. (The relationship between locus of control and job satisfaction of senior police personnel.) *Tydskrif vir Bedryfsielkunde*, 26(2), 20–26.
- Rothmann, S. and Strijdom, G. (2002). Suicide ideation in the South African Police Service in the North West Province. *South African Journal of Industrial Psychology*, 28(1), 44–48.
- Rothmann, S. and van Rensburg, P. (2001, May). Suicide ideation in the South African Police Service. Paper presented at the 10th European Congress on Work and Organizational Psychology, Prague, Czech Republic.
- SAPS see South African Police Service
- SAS Institute (2002). *The SAS System for Windows Release 9.1*. Cary, NC: SAS Institute Inc.
- Schmidtke, A., Fricke, S. and Lester, D. (1999). Suicide among German federal and state police officers. *Psychological Reports*, 84, 167–177.
- Schotte, D. E. and Clum, G. A. (1982). Suicide ideation in a college population: A test of a model. *Journal of Consulting and Clinical Psychology*, 50, 690–696.
- (1987). Problem-solving skills in suicidal psychiatric patients. *Journal of Consulting and Clinical Psychology*, 55, 49–54.
- Shaughnessy, J. J. and Zechmeister, E. B. (1997). *Research methods in psychology* (4th ed.). New York: McGraw-Hill.
- Shea, S. C. (1998). The chronological assessment of suicide events: A practical interviewing strategy for the elicitation of suicide ideation. *Journal of Clinical Psychiatry*, 59, 58–72.
- Slap, G. B., Vorters, D. F., Chaudhuri, S. and Centor, R. M. (1989). Risk factors for attempted suicide during adolescence. *Pediatrics*, 84, 762–772.
- Smith, K. and Crawford, S. (1986). Suicidal behavior among ‘normal’ high school students. *Suicide and Life-Threatening Behavior*, 16, 313–325.
- Sorenson, S. B. and Rutter, C. M. (1991). Transgenerational patterns of suicide attempt. *Journal of Consulting and Clinical Psychology*, 59, 861–866.
- South African Police Service (2001). *The reported serious crime situation in South Africa for the period January – September 2001*. Crime Intelligence, Pretoria. <http://www.saps.org.za>. Accessed on 21 November 2002.
- SPSS Inc. (2003). *SPSS 12.0 for Windows*. Chicago, IL: Author.

- Stokols, D. (2003). The ecology of human strengths. In L. G. Aspinwall and U. M. Staudinger (Eds.), *A psychology of human strengths: Fundamental questions and future directions for a positive psychology* (pp. 331–343). Washington: American Psychological Association.
- Tabachnick, B. G. and Fidell, L. S. (2001). *Using multivariate statistics* (4th ed.). Boston, MA: Allyn & Bacon.
- Topol, P. and Reznikoff, M. (1982). Perceived peer and family relationships, hopelessness and locus of control as factors in adolescent suicide attempts. *Suicide and Life-Threatening Behavior*, 12, 141–150.
- Vallone, P. (1995, November 20). City begins program to stem suicides by police officers. *New York Times*, 88.
- Vilhjalmsson, R., Kristjansdottir, G. and Sveinbjarnardottir, E. (1998). Factors associated with suicide ideation in adults. *Social Psychiatry and Psychiatric Epidemiology*, 33, 97–103.
- Violanti, J. M. (1995). Trends in police suicide. *Psychological Reports*, 77, 688–690.
- . (1996). *Police suicide: Epidemic in blue*. Springfield, IL: C. C. Thomas.