Sociodemographic and clinical profiles of suicidal patients requiring admission to hospitals south of Durban

Naidoo SS, MB ChB, M Fam Med, FCFP, PhD
Honorary Associate Professor and Senior Lecturer, Department of Family Medicine, University of KwaZulu-Natal
Research Professor, Durban University of Technology
Schlebusch L, MA(Clin Psych), MMedSc(Psych), PhD, C Psych, FRSPH, Emeritus Professor
Department of Behavioural Medicine, University of KwaZulu-Natal
Correspondence to: Cyril Naidoo, e-mail: naidoos79@ukzn.ac.za
Keywords: suicide attempters, clinical profile, hospitals, Durban, characteristics

Abstract

Background: Suicidal behaviour has become a major public health concern worldwide. Non-fatal suicidal attempts outnumber fatal episodes by wide-ranging figures across, and within, many countries. Approximately 6 500 suicides and 130 000 suicide attempts occur annually in South Africa, with at least one suicide taking place every 40 seconds, compared to one suicide attempt every three seconds. It is more common for all forms of suicidal behaviour to occur in younger persons. This study aimed to analyse the characteristics of suicide attempters who were admitted to two community-based state hospitals in the south of Durban.

Method: Adult patients presenting at two university-affiliated state hospitals, following a suicide attempt during a two-year period, were invited to participate in the study. A World Health Organization standardised questionnaire was used to collect basic data relating to the suicide attempt. All participants provided informed consent. Data were analysed using SPSS® version 19.

Results: The majority of the 688 participants were women who were young, single, unemployed, low-income earners, of Indian ethnicity, belonged to the Christian faith, and had a primary school education. Four hundred and thirty-eight participants (63.7%) suffered from varying levels of depression. The majority of suicide attempts (97.2%) had taken place within the home environment of the attempters. Self-poisoning emerged as the dominant method that was used by 92.2% of all attempters.

Conclusion: Disturbing levels of non-fatal suicidal behaviour were found in all the population groups. A number of modifiable factors were identified. These have implications for healthcare policy planners and prevention strategies.

Ⓟ **Peer reviewed. (Submitted: 2012-07-31. Accepted: 2012-11-18.)** **S Afr Fam Pract 2013;55(4):373-379**

Introduction

Suicidal behaviour has become a major public health concern in South Africa and elsewhere. Reported figures indicate that this phenomenon is listed among the top 10 causes of deaths in many countries. At least one million people commit suicide globally per annum. Based on current trends, it has been predicted that this number will increase to a staggering 1.53 million per annum by 2020.[1] Literally speaking, this would translate to one suicide globally every 20 seconds, compared to one every 40 seconds in 2000. Non-fatal suicide attempts outnumber fatal episodes by an equally alarming figure, ranging from 10-20 times more per year, and in some countries, this figure is as high as 40 times more than suicides.[2]

In South Africa, approximately 6 500 suicides and 130 000 suicide attempts occur annually.[3] Nearly two thirds of persons committing suicide are reported to be in the younger age group of 20-39 years of age, with a male-to-female ratio of 5:1. Accurate and reliable data on adolescent and child suicide in South Africa are not available.[4] However, it has been estimated that 9.5% of all non-natural deaths in young people are due to suicides, and that this figure closely approximates the adult suicide rate in the country. A recent report in a local daily newspaper alerted readers to an alarming increase in youth suicide and other forms of suicidal behaviour in Chatsworth (a suburb in Durban, in which Indian South Africans are the dominant racial or ethnic group), viz. 67 deaths for the period January to June 2005, compared to 25 deaths for the same period in 2004.[5,6] Recent studies have provided reliable information

that suicidal behaviour among all sociodemographic or ethnic groups has become increasingly prevalent in South Africa, and that the South African figures for non-fatal suicidal behaviour are similar to those reported elsewhere in the world.[1,4] Community surveys by the World Health Organization (WHO) have reported a lifetime prevalence of non-fatal suicidal behaviour or attempted suicides of 0.4-4.2%.

The problem of non-fatal suicidal behaviour among young South Africans is very serious.[7] Up to 33% of all non-fatal suicidal behaviour involves children and young adults.[4] The South African ratio of non-fatal to fatal suicidal behaviour is estimated to be 20:1, or higher, which is comparable to the WHO's global reported rates.[2,8] Generally, three times as many women engage in non-fatal suicidal attempts, than men.[4]

The extent and characteristics of suicide attempts in South Africa have been described in a number of hospital-and community-based studies. For example, a mean age of 25 years for non-fatal suicidal behaviour was reported in a general hospital sample in Johannesburg.[9] In another hospital-based study, the peak age was recorded in the 20- to 29-year-old age group, followed by the 10- to 19-year-old age group.[10] In some centres, non-fatal suicidal behaviour has increased significantly by up to 58.10% over the past decade. Some reports have indicated that at least 24.5% of the total number of patients who were admitted following attempted suicides were black youths younger than 18 years of age.[11] A study on parasuicide (described by the authors as a form of non-fatal suicidal behaviour in which there is no intention to die and akin to "attention-seeking behaviour") was conducted among black South African subjects with a mean age of 23.5 years who presented to a general hospital in 1993. It revealed that the majority were women, attempting suicide for the first time, single, and had experienced early loss of a parent.[12] A community-based study that was carried out in 1993 on 7 340 high school students in the Cape Peninsula reported on disturbing levels of non-fatal suicidal behaviour, ranging from suicidal ideation (19%) to suicide attempts (7.8%) in the 12-month period prior to the study.[13] Similar findings were reported by the Medical Research Council in South Africa following a survey of high school learners in KwaZulu-Natal, in which 17.9% of the learners had considered attempting suicide, 14.2% had designed a plan to commit suicide, 15.6% had made one or more attempts and 24.6% of the suicide attempters required medical treatment.[14]

The current study was undertaken to analyse the prevalence and association between various socioenvironmental and clinical characteristics in a cohort of suicide attempters who required hospital admission to two public hospitals in the south of Durban, during the study period, September 2007 to March 2010.

Method

This cross-sectional epidemiological study was conducted at two local state-funded and university-affiliated public hospitals in the south of Durban, during the period September 2007 to March 2010. In 2001, it was reported that at least 3.3 million people lived in Durban.[15] It is now believed that this figure has grown to at least four million, mainly because of the increased number of people living in informal settlements. Blacks comprise 69%, followed by Indians (19.9%), whites (9%) and coloureds (2.8%). In 2001, the average household income was reported to be R44 391 per annum, and the per capita income was given as R8 726.[15] The catchment population of each hospital comprises mainly residents, and to a lesser extent, employees working within the industrial belt adjacent to each hospital. Collectively, both hospitals attend to at least 3 000 ambulatory patients daily, the majority of which are of Indian and black African ethnicity.

The study population comprised adult patients (18 years and over) admitted to these two hospitals immediately following a suicide attempt during the study period. Following treatment, stabilisation and initial counselling, these patients were invited to participate in the study. This cross-sectional study received ethical approval from the University of KwaZulu-Natal (Reference HSS/0181/06D) and written permission from both state hospitals. Voluntary informed consent was obtained from each participant.

A WHO-validated questionnaire was used to elicit socio-demographic data and associated relevant risk factors from each participant.[16] This questionnaire was individually administered by a research assistant and/or the researcher immediately prior to discharge of the participant as a patient from the admission ward. The intake part of the questionnaire included components such as socio-demographic variables, a description of the context or circumstances relating to the suicidal attempt that necessitated admission, previous suicide attempts, a family history and co-morbid illnesses. The purpose of this part of the questionnaire was to evaluate the presenting suicidal behaviour, contextual factors and circumstances, as well as co-morbid physical or mental illnesses. The Beck Depression Inventory (BDI) was used to objectively diagnose and categorise depression in these participants.[17,18]

The Statistical Software Package for Social Science® version 19 was used for data analysis. Simple descriptive and inferential statistics were employed to assess the relationship between variables. Pearson's chi-square was utilised to perform univariate analyses. A p-value of < 0.05 was considered to be statistically significant.

Table I: Socio-demographic characteristics of the participants (n = 688)

Variable	Men		Women		Total	
	n	%	n	%	n	%
Race or ethnicity						
Black African	33	4.8	127	18.5	160	23.3
Coloured	25	3.6	81	11.8	106	15.4
Indian	101	14.7	275	40.0	376	54.7
White	13	1.9	32	4.6	45	6.5
Non-disclosure	0	0	1	0.1	1	0.1
Age (years)						
< 20	26	3.8	170	24.7	196	28.5
20-29	85	12.3	172	25	257	37.3
30-39	38	5.5	87	12.7	125	18.2
40-49	17	2.5	58	8.4	75	10.9
50-59	5	0.7	24	3.5	29	4.2
> 59	1	0.1	4	0.6	5	0.7
Non-disclosure	0	0	1	0.1	1	0.1
Marital status						
Single	113	16.4	337	49.0	450	65.4
Married	42	6.1	135	19.6	177	25.7
Widowed	4	0.6	8	1.2	12	1.7
Divorced or separated	13	1.9	36	5.2	49	7.1
Family type						
Nuclear	134	19.5	412	59.9	546	79.4
Extended	21	3.1	60	8.7	81	11.8
Living alone	11	1.6	16	2.3	27	3.9
Other	6	0.9	27	3.9	33	4.8
Non-disclosure	0	0	1	0.2	1	0.2
Occupation						
Student	27	3.9	157	22.8	184	26.7
Unemployed	48	7	152	22.1	200	29.1
Professional	57	8.3	135	19.6	192	27.9
Labourer	31	4.5	48	7	79	11.5
Other	9	1.3	24	3.5	33	4.8
Income per annum (in Rands)						
< 30 000	127	18.5	471	68.5	598	86.9
30 000-70 000	31	4.5	36	5.2	67	9.7
> 70 000	12	1.7	7	1	19	2.8
Non-disclosure	2	0.3	2	0.3	4	0.6
Education						
Nil	4	0.6	16	2.3	20	2.9
Primary	107	15.5	330	48	437	63.5
Secondary	30	4.4	103	15	133	19.3
University	5	0.7	10	1.4	15	2.2
Other tertiary	25	3.6	56	8.1	81	11.8
Other	1	0.1	1	0.1	2	0.3
Religion						
Christianity	102	14.8	368	53.5	470	68.3
Hinduism	49	7.1	98	14.2	147	21.3
Islam	11	1.6	32	4.6	43	6.2
Other	10	1.4	16	2.3	26	3.8
Non-disclosure	0	0	2	0.3	2	0.3

Table II: Associated features in suicide attempters (n = 688)

Characteristic	Men		Women		Total	
	n	%	n	%	n	%
Social habits						
Cigarette use*	125	18.2	158	23	283	41.1
Alcohol use*	110	16	129	18.8	239	34.7
Co-morbid illness						
Depression	99	14.4	339	49.3	438	63.7
Medical	56	8.1	153	22.2	209	30.4
Previous attempts	61	8.9	186	27	247	35.9
Place of current attempt						
Home	166	24.1	503	73.1	669	97.2
Other	6	0.9	13	1.9	19	2.8
Method						
Self-poisoning	151	22	483	70.2	634	92.2
Hanging	8	1.2	2	0.3	10	1.5
Using a blunt or sharp object	3	0.4	14	2.0	17	2.5

*: p-value < 0.05

Results

Six hundred and ninety suicide attempters were identified as being eligible for participation in the study. Two patients refused to take part for personal reasons. The racial or ethnic composition of the study participants is illustrated in Table I. One female participant did not divulge her race group. Indian participants constituted the majority. This was followed by black, coloured and white participants. In terms of gender and race, Indian men (14.7%) and Indian women (40%) dominated. Gender analysis per race group reflected a higher composition of women in each group. Generally speaking, the majority of suicide attempters were women (n = 516, 75%); of a younger age, i.e. less than 40 years of age (n = 578, 84.0%); single (n = 450, 65.4%); unemployed, including students (n = 384, 55.8%); had attained the highest educational level of primary school education (n = 437, 63.5%); belonged to the Christian faith (n = 470, 68.3%) and were in the low-income category, i.e. earned less than R30 000 per annum (n = 598, 86.9%).

An analysis of the social habits of all the participants and other associated contextual features is detailed in Table II. This shows that 41.1% of the participants were active smokers at the time of admission. 34.7% consumed alcohol. Women outnumbered men in both analyses [23% compared to 18.2% (smoking) and 18.8% compared to 16% (alcohol use)]. Statistically significant gender differences were recorded for both variables.

Co-morbid, long-standing medical illnesses, such as diabetes mellitus and essential hypertension, were reported by 30.4% of participants, and particularly by women (22.2%), compared to men (8.1%).There were no self-reported cases of any form of mental illness, such as depression. However, 488 (63.7%) were objectively found to be suffering (using the BDI) from varying grades of depression, ranging from mild to severe. The cut-off score using this method to diagnose depression was 10. More women (49.3%) were found to be suffering from depression than men (14.4%).

The majority of current suicide attempts (97.2%) had taken place within the home environment of the attempters. Previous suicide attempts were reported by 247 (35.9%) participants. These comprised 27% of the women and 8.9% of the men. Self-poisoning emerged as the dominant method that was used by suicide attempters (n = 634, 92.2%). This was followed by self-inflicted injuries using a blunt or sharp object in 2.5% of participants, and attempted hanging in 1.5%.

Discussion

The evidence produced by this study enriches our common understanding of a variety of sociodemographic and clinical characteristics that were prevalent with regard to the suicide attempters. This information has clinical implications with regard to identifying individuals at risk, as well as in establishing effective interventions for these vulnerable groups.

It is important to note that this study was conducted in two adjoining suburbs in southern Durban, where certain population groups predominate. Indians constituted the majority of suicide attempters who were admitted to both state hospitals used in the study. This was followed by black Africans, coloureds, and then whites. Ethnic or racial categories are a social construct that has historical roots

and broadly reflects the diversity of people living in South Africa. Statistics South Africa continues to classify people into ethnic or racial groups.[15] These categories are listed as black African, white, coloured, and Asian or Indian, and do not represent any intragroup diversity.[3] Certain race groups are highly concentrated in the vicinity of both hospitals, for example Indians are highly concentrated close to one of the state hospitals used, whereas the coloured population group is found in large numbers close to the other state hospital. Black African residents in the extensive catchment area of both hospitals, designated by the provincial department of health, comprise at least 50% or more of the users of these hospitals. The high number of black African suicide attempters in this study mirrored the increased prevalence in this race group that has been observed in several other studies.[11,12]

The majority of suicide attempters were of a younger age (< 40 years), unemployed, single, and living within nuclear family systems. Similar characteristics have been found in other community-based studies.[4,9,10,13,19] In addition, our study showed that the majority of suicide attempters were low-income earners. This finding is similar to that reported locally,[7] and in data from three national surveys in the USA, in studies conducted between 2001 and 2003, which showed an inverse relationship between income and psychological distress. Those in the lowest income bracket demonstrated significant distress.[20]

The vast majority of suicide attempts took place within the micro-environment, within the home or usual residence of the attempter. This finding may imply that poor family functioning and interpersonal problems may be at play as a stressor in precipitating the resultant impulsive suicidal behavioural action within or close to the home of the perpetrator. Easy accessibility of agents, such as analgesics, prescribed medicines, household detergents and inflammable agents (such as paraffin), which were available within or close to the home environment and which were used in the suicide attempts, may have also been an influential factor. Similar findings were recorded in a number of studies that were carried out in South Africa.[21-24]

A wide range of methods were used by suicide attempters in our study. These included self-poisoning, hanging, the use of blunt, sharp or moving objects and guns, as well as self-immolation. Generally, the exact method used depended on a number of factors, such as intention to die (high or low), intensity of the trigger factor and the ensuing crisis, the threshold of tolerance for the trigger factors and their relation to the critical turning point, personal and/or popular choices in terms of prior proven effectiveness and producing the desired result, access to the agent or instrument to be used, and the environment in which the act was planned. In this study, the majority of suicide attempts took place within the home environment. Accessibility to the agent or instrument that was used could have influenced the choice of location for the suicide attempt.[4] Self-poisoning emerged as the leading method of choice in all the studied groups, and particularly for the women. Commonly used agents included non-opioid analgesics, antipyretics, anti-rheumatic drugs, sedative-hypnotic and psychotropic agents. These findings were also made in a number of other studies.[12,25-27]The authors of these studies expressed a shared concern that a large number of cases of self-poisoning involved household medicines and agents that were easily available, such as paracetamol, anti-diabetic tablets, benzodiazepines, methylsalicylate ointment, paraffin, detergents and insecticides. This has endorsed a call for increased awareness, education and vigilance among parents, families and householders.[4,11,28,29]

A large number of participants (37%) reported previous attempts. Women outnumbered men in this regard. Similar findings were reported in studies carried out in South Africa and elsewhere.[1,4,30-32] Several studies have commented that previous attempts constituted the strongest risk factor predictor for further attempts and successful fatal suicidal behaviour.[19,33,34] Therefore, this finding provides an excellent opportunity for families, clinicians and psychotherapists to intervene timeously and constructively. A collaborative synergistic approach, by all identified stakeholders within a multidisciplinary network working towards holistic personal development and the strengthening of individuals at risk and interpersonal relationships, has been identified as a powerful intervention for prevention.

In this study, analysis of the social habits of the suicide attempters showed that a significant number of both sexes smoked cigarettes (41.1%) and consumed alcohol (34.7%). Statistically significant gender differences were recorded for both these variables. Risk-taking behaviour, which includes psychoactive substance use, such as cigarette smoking and alcohol, has been found to be a significant factor in suicide behaviour in several studies.[13,35] A call has also been made for more in-depth studies to analyse the associations between substance overdose and suicidal behaviour.[36] Although a minority of participants reported having long-standing illnesses, such as lifestyle diseases (30.4%), a large number (63.7%) was objectively found to be suffering from varying degrees of depression. Other studies have identified various psychopathological variables as co-morbid factors in the pathogenesis of suicide behaviour.[11,37-40] In South Africa, mood disorders have been recognised as the most common co-morbid illness in two thirds of black patients presenting with non-fatal suicide behaviour.[11] Generally, patients with affective disorders have been referred to as a high-risk category for fatal suicidal behaviour, especially during in-patient treatment and in the first year following discharge from hospital.[40-42] Depression has been reported

to be the strongest correlate of suicidal ideation and suicide attempts.[43]These findings have implications for clinicians, mental health policy-makers and designers of appropriate prevention strategies.

Clinical implications of the study findings

All stakeholders, including parents, community and youth leaders, healthcare providers, educators and education programme planners, need to be made aware of these findings, which place certain individuals at risk. Early and prompt recognition of these individuals, together with selective and sustained therapy (including psychotherapy, family therapy, peer mentorship, buddy support, behaviour modification and strengthening of coping strategies) may contribute to a significant reduction of morbidity and mortality in this target group. For example, objective strategies that are designed to screen for and effectively treat depression earlier, before or even after the first attempt, may have a significant impact on a reduction in further attempts.

Limitations

The presented data are cross-sectional. Therefore, any evidence of an association between suicide attempts and clinical or demographic factors or circumstances should not be interpreted as the establishment of a causal or temporal relationship. The study was also conducted in southern Durban only, and although the population demography approximates that in the rest of Durban, the study findings in the different population groups cannot be generalised to the rest of KwaZulu-Natal, nor to other parts of South Africa.

Although the questionnaire that was used in this study made provision for the analysis of contextual aspects relating to the suicide attempt, two omissions were identified retrospectively in the questionnaire. These related to a precise exploration of the precipitating factors that led to the suicide attempt, and an in-depth exploration of specific co-morbid illnesses, including communicable illnesses, such as human immunodeficiency virus and acquired immune deficiency syndrome.

Conclusion

Suicide attempters are considered to be high-risk individuals. Several prevailing clinical and socio-demographic characteristics were identified in this cohort of suicide attempters. These bear similarities to those found in other studies. Because suicidal behaviour is such a complex, multi-faceted phenomenon and process that has many interacting variables, intervention and management programmes cannot be implemented according to a one-size-fits-all philosophy, but rather should be adapted and individualised to each patient. This study endorses the call for a collaborative, synergistic, multidisciplinary approach that is comprehensive and embraces all implicated relevant circumstances or factors in suicidal attempts. Large-scale longitudinal prospective community and population surveys in South Africa are recommended to provide greater insight into temporal trends in relation to attempted suicide, as well as the association with identified characteristics or risk factors in the different population groups in South Africa.

Acknowledgements

The authors wish to thank the study participants for their co-operation and contributions, as well as the management of the two state hospitals for permission to conduct the study. In addition, Ms Tonya Esterhuizen, biostatistician, is thanked for statistical support.

References

1. Bertolote JM, Fleischmann A. Suicidal behavior prevention: WHO perspectives on research. Am J Med Genet C Semin Med Genet. 2005;133C(1):8-12.
2. World Health Organization. Figures and facts about suicide. Geneva: Department of Mental Health, WHO; 1999.
3. Burrows S, Schlebusch L. Priorities and prevention possibilities for reducing suicidal behaviour. In: Van Niekerk A, Suffla S, Seedat M, editirs. Crime, violence and injury prevention in South Africa: data to action. Tygerberg: MRC-UNISA Crime, Violence and Injury Lead Programme, 2008; p. 173-201.
4. Schlebusch L. Suicidal behaviour in South Africa. 1st ed. Pietermaritzburg: University of KwaZulu-Natal Press; 2005.
5. Cole B. Suicide in the youth. Daily News 2005. Jan 24.
6. Bertolote JM, Fleischmann A, De Leo D, et al. Suicide attempts, plans, and ideation in culturally diverse sites: the WHO SUPRE-MISS community survey. Psychol Med. 2005;35(10):1457-1465.
7. Schlebusch L. Suicidal behaviour in young people. In: Van Niekerk A, Suffla S, Seedat M, editors. Crime, violence and injury in South Africa: enabling child safety. Tygerberg: Medical Research Council-University of South Africa; 2012.
8. Schlebusch L. Current perspectives on suicidal behaviour in South Africa. In: Suffla S, Van Niekerk A, Duncan D, editors. Crime, violence and injury prevention in South Africa: developments and challenges. Tygerberg: Medical Research Council.
9. Deonarain M, Pillay BJ. A study of parasuicide behaviour at the Chris Hani Baragwanath Hospital. In: Schlebusch L, Bosch BA, editors. Suicidal behaviour 4: proceedings of the Fourth Southern African Conference on Suicidology. Durban: University of Natal, 2000; p. 112-127.
10. Bosch BA, McGill VR, Noor Mahomed SB. Current trends in suicidal behaviour at a general hospital. In: Schlebusch L, editor. Suicidal behaviour 3: proceedings of the Third Southern African Conference on Suicidology. Durban; Third Southern African Conference on Suicidology, 1995; p. 71-94.
11. Schlebusch L, Vawda NB, Bosch BA. Suicidal behavior in black South Africans. Crisis. 2003;24(1):24-28.
12. Naidoo P, Pillay BJ. Parasuicide in a general hospital in South Africa. Psychol Rep. 1993;72(3 Pt 1):979-982.
13. Flisher AJ, Ziervogel CF, Chalton DO, et al. Risk-taking behaviour of Cape Peninsula high-school students. Part II. Suicidal behaviour. S Afr Med J. 1993;83:474-476.
14. SA National Youth Risk Behaviour Survey 2000. South African Medical Research Council; 2000.
15. Statistics South Africa. South African population statistics. Pretoria: Government Gazette; 2001.
16. World Health Organization. Multi-site Intervention Study on Suicidal Behaviours: SUPRE-MISS. Geneva: WHO; 2005.
17. Beck AT, Ward CH, Mendelson M, et al. An inventory of measuring depression. Arch Gen Psychiatry. 1961;4:561-571.
18. Groth-Marnat G. Handbook of psychological assessment. New York: John Wiley; 2003.
19. Beghi M, Rosenbaum JF. Risk factors for fatal and nonfatal repetition of suicide attempt: a critical appraisal. Curr Opin Psychiatry. 2010;23(4):349-355.

20. McMillan KA, Enns MW, Asmundson GJ, Sareen J. The association between income and distress, mental disorders, and suicidal ideation and attempts: findings from the collaborative psychiatric epidemiology surveys. J Clin Psychiatry. 2010;71(9):1168-1175.
21. Cassimjee MH, Pillay BJ. Suicidal behaviour in family practice: a pilot study. In: Schlebusch L, Bosch BA, editors. Suicidal behaviour 4: Fourth Southern African Conference on Suicidology. Durban; Southern African Conference, 2000; p. 49-55.
22. Edwards SD, Cheetham RW, Naidoo LR, Griffiths JA. Parasuicide in the Durban Indian community. S Afr Med J. 1981;60(6):241-243.
23. Pillay AL, Wassenaar DR. Psychological intervention, spontaneous remission, hopelessness, and psychiatric disturbance in adolescent parasuicides. Suicide Life Threat Behav. 1995:25(3)386-392.
24. Pillay AL, Wassenaar DR. Family dynamics, hopelessness and psychiatric disturbance in parasuicidal adolescents. Aust N Z J Psychiatry. 1997:31(2)227-231.
25. Farzaneh E, Mehrpour O, Alfred S, et al. Self-poisoning suicide attempts among students in Tehran, Iran. Psychiatr Danub. 2010;22(1):34-38.
26. Minnaar GK, Schlebusch L, Levin A. A current study of parasuicide in Durban. S Afr Med J. 1980;57(6):204-207.
27. Schlebusch L. Self-destructive behaviour in adolescents. S Afr Med J. 1985;68(11):792-795.
28. Cummins RR, Allwood CW. Suicide attempts or threats by children and adolescents in Johannesburg. S Afr Med J. 1984;66(19):726-729.
29. Schlebusch L. An overview of suicidal behaviour in South Africa at the dawn of the new millenium. In: Schlebusch L, Bosch BA, editors. Suicidal behaviour 4: proceedings of the Fourth Southern African Conference on Suicidology. Durban; Southern African Conference on Suicidology; 2000.
30. Fleischmann A, Bertolote JM, De Leo D, et al. Characteristics of attempted suicides seen in emergency-care settings of general hospitals in eight low- and middle-income countries. Psychol Med. 2005;35(10):1467-1474.
31. Gehin A, Kabuth B, Pichene C, Vidaihet C. Ten year follow-up study of 65 suicidal adolescents. J Can Acad Child Adolesc Psychiatry. 2009;18(2):117-125.
32. Phillips MR, Li X, Zhang Y. Suicide rates in China, 1995-99. Lancet. 2002;359(3909):835-840.
33. Bjornaas MA, Hovda KE, Heyerdahl F, et al. Suicidal intention, psychosocial factors and referral to further treatment: a one-year cross-sectional study of self-poisoning. BMC Psychiatry. 2010;10:58.
34. Reid WH. Prognosis after suicide attempt: standard of care and the consequences of not meeting it. J Psychiatr Pract. 2009;15(2):141-144.
35. Hockenberry JM, Timmons EJ, Vander Weg M. Smoking, parent smoking, depressed mood, and suicidal ideation in teens. Nicotine Tob Res. 2010;12(3):235-242.
36. Bohnert AS, Roeder K, Ilgen MA. Unintentional overdose and suicide among substance users: a review of overlap and risk factors. Drug Alcohol Depend. 2010;110(3):183-192.
37. Bertolote JM. Suicide in the world: an epidemiological overview 1959-2000. London: Martin Dunitz; 2001.
38. Hawton K, Van Heeringen K. The international handbook of suicide and attempted suicide. Chichester: Wiley; 2000.
39. Krug EG, Mercy JA, Dahlberg LL, Zwi AB. The world report on violence and health. Lancet. 2002;360(9339):1083-1088.
40. Tidemalm D, Langstrom N, Lichtenstein P, Runeson B. Risk of suicide after suicide attempt according to co-existing psychiatric disorder: Swedish cohort study with long-term follow-up. BMJ. 2008;337:a2205.
41. Hoyer EH, Licht RW, Mortensen PB. Risk factors of suicide in inpatients and recently discharged patients with affective disorders. A case-control study. Eur Psychiatry. 2009;24(5):317-321.
42. Hunt IM, Kapur N, Webb R, et al. Suicide in recently discharged psychiatric patients: a case-control study. Psychol Med. 2009;39(3):443-449.
43. Flisher A J, Lombard C. Suicidal ideation and attempts in adolescents: associations with depression and six domains of self-esteem. J Adolesc. 2004;27(6):611-624.