

# Suicidal ideation in seropositive patients seen at a South African HIV voluntary counselling and testing clinic

RD Govender<sup>1</sup>, L Schlebusch<sup>2</sup>

<sup>1</sup>Department of Family Medicine, University of Kwa-Zulu Natal, Nelson R Mandela School of Medicine, Durban, South Africa

<sup>2</sup>Department of Behavioural Medicine, University of KwaZulu-Natal, Nelson R Mandela School of Medicine, Durban, South Africa

## Abstract

**Objective:** Suicidal behaviour and HIV/AIDS are significant public health concerns. The aim of this study was to investigate suicidal ideation in patients who were referred to a voluntary HIV counselling and testing (VCT) clinic and who were found to be seropositive. This in order to improve suicide prevention and intervention strategies amongst such patients. **Method:** The sample studied consisted of volunteer adult patients referred over a three-month period to a HIV VCT clinic based at a university-affiliated general state hospital. Patients completed a questionnaire on sociodemographic data. Suicidal ideation was measured using the Beck Hopelessness Scale and the Beck Depression Inventory (BDI), at two time points (within 72 hours after notification and again at a 6 week follow-up). All patients received extensive pre-and post-test counselling. **Results:** HIV-test results were available for 189 (99.5%) of the original sample of 190 patients studied, with 157 (83.1%) testing positive. More females tested positive as did unemployed and single/divorced patients. The mean age for HIV-positive patients was 33.49 (SD = 9.449), and for HIV-negative patients it was 37.94 (SD = 15.238). Age was a significant factor in that for each year increase in age, the risk of testing HIV-positive decreased by 4.1%. Lower education and traditional beliefs were also significantly associated with testing HIV-positive. At 72 hours suicidal ideation was present in 17.1% (95% confidence interval 12.16% to 23.45%), and at 6 weeks in 24.1% (95% confidence interval 17.26% to 32.39%) of the seropositive patients. Their average BDI scores were 15.20 and 14.23 respectively at the two time points. **Conclusion:** Suicidal ideation was present in a significant number of the seropositive cohort studied and increased over a six week period among these patients. The average BDI scores at both time points imply a clinical depression. The findings also suggest an association between positive HIV-test results and certain socio-demographic variables that can act as indicators for suicidal ideation in HIV-infected persons, although this requires further research. Although the relationship between suicidal ideation and HIV-infection is complex, it is an important consideration when assessing patient suicide vulnerability at HIV VCT clinics and when implementing suicide prevention and management strategies.

**Keywords:** Suicidal ideation; HIV-infection; Voluntary counselling and testing

**Received:** 10-12-2010

**Accepted:** 12-05-2011

**doi:** <http://dx.doi.org/10.4314/ajpsy.v15i2.12>

## Introduction

Voluntary counselling and testing (VCT) offer patients an optional opportunity to be counselled and tested for the presence of HIV antibodies. Knowledge of their HIV status has major implications for HIV-positive persons. They include, inter alia, the need to disclose their status to their partner or partners, the need to change sexual behaviour,

accessing the availability of treatment and social support, as well as dealing with certain negative ramifications such as possible social stigmatization, employment uncertainty and adverse psycho-social-cultural factors. Additional considerations are: fear of adverse sequelae of the disease itself and psychiatric complications. The latter can include acute stress reactions, adjustment disorders, obsessive compulsive disorders involving obsessive ruminations and scrutiny for disease progression, bereavement reactions, neuropathology/cognitive impairment, personality disorders, depression, mania, psychoses, substance abuse, an exacerbation of pre-existing psychiatric disorders, neuropsychiatric side-effects that can result from ARV and

## Correspondence:

Professor L Schlebusch  
Department of Behavioural Medicine, University of KwaZulu-Natal,  
Nelson R Mandela School of Medicine, Durban, South Africa  
email: [schlebuschl@ukzn.ac.za](mailto:schlebuschl@ukzn.ac.za)

psychotropic medication, anxiety reactions associated with the “worried well”, “AIDS phobia”, AIDS panic” or AIDS anxiety” and suicidal behavior.<sup>1-4</sup>

South Africa, a developing country, is considered to be one of the countries in the world worst affected by HIV/AIDS where about 5.7 million people and one in three pregnant woman are living with HIV/AIDS.<sup>1-2,5</sup> The province of KwaZulu-Natal (where this study was done) has one of the highest seropositive prevalence rates.<sup>2</sup> Various HIV prevention strategies have been launched in South Africa. Nearly 85% of all South African youth have been exposed to such national multi-media HIV education and awareness campaigns.<sup>6</sup> However, these and other prevention campaigns have not diminished the progression of HIV-infection with heterosexual sexual intercourse being the main mode of HIV transmission. Infection rates remain high, especially amongst younger people with females more likely to be infected than males.<sup>5,7-13</sup>

Likewise, suicidal behaviour in South Africa is a major public health concern accounting respectively for an average non-natural death rate of 9.5% in young people and 11% in adults, giving overall suicide rates that range between 17.2 and 25 per 100 000 of the population.<sup>2,14-16</sup> It is estimated that for every suicide in the country there are at least 20 attempts<sup>2</sup>, and studies show that suicidal ideation is present in 12% amongst adolescents<sup>17</sup> and 9.1% amongst adults<sup>18</sup> in the general population. Further, an increased risk of suicidal behaviour in South Africa has been reported in HIV/AIDS sufferers.<sup>1,2,14</sup> Nevertheless, it has been pointed out that there is a hidden burden of suicidal behaviour in the country that requires further research.<sup>1,2</sup> For example, studies elsewhere<sup>4,19-20</sup> have examined the mental health status of persons with acute/early HIV-infection as well as suicidal ideation associated with HIV testing, but there is a dearth of knowledge in this regard in developing countries such as South Africa despite its high suicide and HIV prevalence rates.

In light of the foregoing, the present study investigated suicidal ideation in patients referred to an HIV VCT clinic and who were found to be seropositive in order to improve suicide prevention and intervention strategies in these patients. Because depression is frequently associated with suicidal behaviour and ideation<sup>2,4,16,19</sup> the presence of depressive symptomatology in the seropositive patients was also studied.

## Method

### Participants/Setting

The sample studied consisted of adult volunteer patients referred to an HIV VCT clinic at a university-affiliated general state hospital, Durban, South Africa over a three month period. The study was ethically approved by the Biomedical Research Ethics Committee of the University of KwaZulu-Natal. Patients voluntarily signed an informed consent form, and were given the right of choice not to answer any questions that they did not want to. All patients entered into the study received extensive pre- and post-test counselling tailored to the individual needs of each patient, risk factors, patient vulnerabilities, coping/supportive resources and knowledge about HIV transmission and its treatment.

## Measures

Suicidal ideation was measured using the Beck Hopelessness Scale (BHS) and the Beck Depression Inventory (BDI). The BHS is designed to measure hopelessness (negative expectations of the future) which can be used as an indirect indicator of suicide risk.<sup>21</sup> It contains 20 true-false items and the severity of hopelessness is calculated by summing scores for the 20 items with the total score ranging from 0 = no hopelessness to 20 = maximum hopelessness.<sup>21</sup> The BDI was developed to standardise the measurement of depression severity in order to monitor change over time.<sup>21</sup> It covers 21 behavioural manifestations (items) describing symptoms from low to high. Items are scored individually from 0 to 3 and then summed to obtain a total score ranging from 0-63 with < 9 = minimal depression to > 30 = severe depression. Both the BHS and the BDI were individually completed by each patient entered into the study at two time points, that is, within 72 hours after notification and again at a six week follow-up by arranging for patients to return to the VCT clinic. This time frame is approximately in line with international studies<sup>4,19-20</sup> on suicidal ideation and HIV-testing. On item 9 of the BDI (which was used to assess suicidal ideation) patients endorsed one of the following: 0 (“I don’t have any thoughts of killing myself”), 1 (“I have thoughts of killing myself, but I would not carry them out”), 2 (“I would like to kill myself”), or 3 (“I would kill myself if I had the chance”). As in other research for the purpose of the present study, “suicidal ideation” was defined as a score of 1 to 3 on this item of the BDI.<sup>19</sup> In addition, on the BHS and BDI total summed cut off scores respectively of 9 and 10 were used to determine suicidal ideation and depression.<sup>21</sup> The patients also completed a questionnaire on socio-demographic variables grouped into seven correlates (categories), viz.: age, gender, educational status, employment, marital status, ethnicity and traditional beliefs. To accommodate the isiZulu speaking patients in the sample (who constituted the largest African ethnic group), the BHS, BDI and socio-demographic questionnaire were translated into isiZulu and then back translated with the assistance of a professional translator.

### Statistical Analysis of Data

The SPSS version 15.0 (SPSS Inc, Chicago, Illinois, USA) was used for analysis of data. Pearson’s Chi-square ( $\chi^2$ ) test, t-tests and a binary logistic regression analysis of the socio-demographic variables were done. The latter used a backward stepwise method with entry and exit probabilities set at 0.05 and 0.1 based on likelihood ratio tests. The socio-demographic variables were entered into the model at step one. After five steps, the final model was reported with odds ratios and 95% confidence intervals.

## Results

HIV-test results were available for 189 (99.5%) of the referred number of 190 patients. In total 83.1% (n=157) tested positive for HIV infection. A substantial portion of the patients studied had suicidal ideation at both time points which increased by 7% from the first to the second measurement (i.e. between 72 hours and the 6-week

follow-up). This consisted of endorsement about thoughts of killing themselves on item 9 of the BDI and an average BHS cut-off score of 9 or above. Their average BDI scores, indicating clinical depression, also remained elevated at both time points.

At 72 hours following HIV testing, suicidal ideation was present in 17.1% of the seropositive sample (95% confidence interval 12.16% to 23.45%). The average BDI score was 15.20 (SD=5.917). At 6 weeks following HIV testing, suicidal ideation was found in 32 of 133 patients who had tested positive, giving a 24.1% risk (95% confidence interval 17.26% to 32.39%). The average BDI score for these patients was 14.23 (SD=5.849).

Suicidal ideation was not separately analysed for each socio-demographic correlate studied, but as a secondary consideration, collectively they suggest aetiological implications for HIV-positivity and suicidal ideation. Some patients were lost on follow-up and not all respondents provided information on all the variables investigated. The sub-totals analysed, therefore, vary as indicated in the text.

The mean age for the seropositive patients was 33.49 years (SD=9.449), and for the seronegative patients it was 37.94 years (SD=.15.238). Ages ranged from 16 years to 79 years, the statistical significance of which is reflected in Table I. There was a borderline statistically significant association between gender and HIV status (Pearson's Chi Square 3.89,  $p=0.049$ ), in that females (85.6%) were more likely to test positive than males (73.1%).

A significant association was found between education levels and HIV-test results (Pearson's Chi Square =18.5,  $p=0.001$ ). As education levels increased, the number of patients who tested positive for HIV infection decreased. As opposed to only 46.7% who tested positive in those with a tertiary education, (95.1%) tested positive in those with no formal or only a primary education. Compared to the other educational levels, 81.6% with a Grade 8, 84.6% with a Grade 10 and 83.7% with a Grade 12 educational level, respectively were HIV-positive.

Of the unemployed, 88.3% tested positive, compared to students (75.0%) and employed (75.8%) patients. However, this difference was not quite statistically significant (Pearson's Chi square = 5.2,  $p=0.074$ ). The single/divorced group was most likely to test HIV positive (85%) compared to married adults (72.4%), but this difference was not statistically significant (Pearson's Chi square 2.7,  $p=0.096$ ). There was a significant association between ethnicity and

HIV-test results (Pearson's Chi square 21.2,  $p<0.001$ ). The African ethnic group was significantly more likely to test HIV positive than the other ethnic groups in the sample studied (86% vs 30%).

An association was also found between traditional beliefs and HIV-test results (Pearson's Chi square 25.8,  $p<0.001$ ). Those who adhered to traditional African beliefs were significantly more likely to test HIV-positive than the non-traditional belief group (87.3% vs 37.5%).

The binary logistic regression analysis is shown in Table I. A significant association was found between the HIV-test results and age on the logistic regression (OR = 0.959,  $p = .060$ ). With every one year increase in age, the risk of being positive decreased by 0.041 (4.1%). The highest rate of HIV-seroconversion for both men and women in this study was between the ages of 26 to 34 years. When all factors were accounted for, a higher age became a protective factor against HIV-infection. Education was significantly associated with testing HIV-positive. Having no education or only primary education resulted in an almost 20 times higher risk for testing HIV-positive compared to those with a tertiary education. Similarly those with only grade 8, 10 or 12 education were also significantly more at risk than those with a tertiary education. Traditional beliefs also indicated a 22.6 times higher risk for testing HIV-positive compared to those who subscribed to non- traditional beliefs.

## Discussion

Suicidal behaviour is a complex phenomenon, and risk factors and aetiology are multifactorial and multidimensional. However, in the present study, results corroborate both South African<sup>1-2,16</sup> and international research<sup>19-20</sup> findings that HIV/AIDS can be a risk factor in suicidal behaviour, and that in some patients suicidal ideation can be associated with HIV testing and notification. The findings also suggest an association between positive HIV-test results and certain socio-demographic variables that can act as indicators for suicidal ideation in HIV-infected persons. The high seropositive rate was expected in view of the facts that patients were referred and that the area serviced by the VCT clinic has one of the highest HIV-infection rates in the country. The ethnic distribution in the study was to be expected, as it reflects the demographics of the population served by the VCT clinic where the research was done.

**Table I: Binary logistic regression**

	Wald	df	p value	OR	95.0% C.I. for OR	
					Lower	Upper
Age (Years)	3.528	1	0.060	.959	.918	1.002
Education	10.284	4	0.036			
None vs tertiary	9.293	1	0.002	19.694	2.898	133.818
Grade 8 vs tertiary	4.715	1	0.030	5.545	1.182	26.020
Grade 10 vs tertiary	5.205	1	0.023	5.406	1.268	23.043
Grade 12 vs tertiary	4.425	1	0.035	4.738	1.112	20.188
Traditional African beliefs vs other beliefs	13.355	1	<0.001	22.630	4.247	120.571
Constant	1.453	1	0.228	.227		

The fact that there were more females than males and younger patients with suicidal ideation who tested positive for HIV-infection is supported by other research that shows women's and the youth's vulnerability in this regard.<sup>1-2,14,16</sup> The age of sexual debut, especially in the young has been linked to having a greater number of sexual partners and therefore a greater risk of HIV infection.<sup>7-9</sup> The effects of age mixing differ for males and females with young females who have older male partners also at a greater risk for HIV infection.<sup>8</sup> These are important considerations given our findings, since in South Africa, as in many other countries, suicidal behaviour in young people is an increasing problem.<sup>2,15</sup> This shift in relation to age is sometimes referred to as the "ungreying phenomenon."<sup>2</sup> In addition, consistent with international research, South African studies generally report a female preponderance in non-fatal suicidal behaviour in the younger age groups.<sup>2,14-15</sup>

It is not surprising, that increasing age and higher education in this study were found to be protective factors against contracting HIV-infection and associated suicidal ideation, while lower education and traditional beliefs did not appear to offer the same protection. Educational attainment and the relationship between HIV-infection is closely correlated with income, gender, employment/socioeconomic status, economic migration and urbanisation with related socio-economic implications.<sup>11-12,23-24</sup> Although some studies on the relationship between socio-economic changes and suicidal behaviour have produced divergent results, others have highlighted the impact on suicidal behaviour of both adverse socio-economic factors as well as economic development.<sup>2,15-16</sup> Contemporary research<sup>25</sup> has shown that low socio-economic status increase the risk of suicidal behaviour, as does low educational levels and long term unemployment. According to South African research<sup>2,15</sup> the role of socio-economic correlates that contribute to suicidal behaviour risks in particular are: financial problems and associated feelings of loss of parental support, the effects of rapid urbanization, an increasing competitiveness in education and employment as well as rising expectations in the young as they move away from traditional value systems and norms. Regarding the role of traditional beliefs found in the present study, both international and African research<sup>16</sup> has documented the potential influence of religious and cultural beliefs on suicidal behaviour.

The rates of suicidal ideation following HIV-testing in this study are comparable to those reported by other research, although on follow-up assessments the increases tend to vary.<sup>4,19</sup> An important finding in the present research was that, despite extensive counseling, suicidal ideation increased from 17.1% in the patients who initially underwent voluntary HIV-testing to nearly one quarter six weeks later in those who tested positive. This change in the suicidal ideation rate is almost twice the rates reported for the general population in South Africa.<sup>17-18</sup> Finally, the average elevated BDI score of patients at both time points imply the presence of a clinical depression in the sample studied, which is consistent with the established link between suicidal ideation and depression.<sup>2,16,25</sup>

### Limitations

Limitations of this study include the facts that the target population was urban based and that limited information on pre-existing psychiatric disorders, sexual history, and traditional and cultural beliefs restricted more in-depth exploratory analyses. Also, how the socio-demographic variables independently contribute aetiologically to suicidal ideation associated with seropositive HIV-test results requires further research. Although this study provided insight into suicidal ideation and seropositive results following HIV testing and notification, the results need to be interpreted with caution and cannot be axiomatically generalised.

### Conclusion

Suicidal ideation which increased over a six week follow-up period was present in a significant number of the patients studied, and considerably higher than found in the general population reported in recent South African studies.<sup>17-18</sup> Most suicidal acts are preceded by a process and suicidal ideation forms part of that process.<sup>2,25</sup> However, as part of this process the dynamics are highly individual and the relationship between suicidal ideation, HIV-infection and the various socio-demographic factors found in this study are complex and interlinked. Nevertheless, it is hoped that the findings reported here will assist in assessing patient suicidal vulnerability at HIV VCT clinics when doing pre- and post-counselling and in implementing suicidal prevention and management strategies, especially given that suicidal ideation in these patients and their propensity for suicidal behaviour can be acute, chronic or latent and progress through various phases.<sup>1</sup> As has been recommended before<sup>1</sup>, general suicide prevention guidelines<sup>2,25-27</sup> can be adapted to be socio-culturally sensitive for use in HIV-positive patients.

### Acknowledgements

The authors wish to thank Prenisha Pillay for her research assistance, and Mrs. T Esterhuizen (Biostatistician) for statistical assistance. Dr RD Govender was supported by the Columbia University- South African Fogarty AIDS International Training and Research Programme (AITRP) funded by the Fogarty International Center, National Institute of Health (Grant# D43TW00231).

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