Prevalence of psychological distress and its association with socio-demographic and HIV-risk factors in South Africa: Findings of the 2012 HIV prevalence, incidence and behaviour survey

J.C. Mthembu, M.L.H. Mabaso, G. Khan, L.C. Simbayi

HIV/AIDS, STIs and TB Unit, Human Sciences Research Council, Cape Town, South Africa
HIV/AIDS, STIs and TB Unit, Human Sciences Research Council, Durban, South Africa
Population Health, Health Systems and Innovation, Human Sciences Research Council, Cape Town, South Africa
DCEO-Research, Human Sciences Research Council, Pretoria, South Africa
Department of Psychiatry & Mental Health, University of Cape Town, Cape Town, South Africa

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ABSTRACT

Background: In South Africa, there are limited nationally representative data on the prevalence and factors associated with psychological distress. This study used a 2012 nationally representative population-based household survey to investigate factors associated with psychological distress in South Africa.

Methods: The survey is based on a multistage stratified cross-sectional design. Univariate and multivariate logistic regression models were fitted to identify factors associated with psychological distress.

Results: Out of a total 25,860 participants, 23.9% reported psychological distress. Higher likelihood of reporting psychological distress was significantly associated with being female (OR = 1.68 (95% CI: 1.34–2.10), p < 0.001), aged 25 to 49 years (OR = 1.35 (95% CI: 1.08–1.70), p = 0.010) and 50 years and older (OR = 1.44 (95% CI: 1.06–1.97), p = 0.023), Black Africans (OR = 1.61 (95% CI: 1.24–2.10), p < 0.001), a high risk drinker (OR = 1.37 (95% CI: 1.02–1.83), p = 0.037), a hazardous drinker (OR = 4.76 (95% CI: 2.69–8.42), p < 0.001) and HIV positive (OR = 1.79 (95% CI: 1.55–2.08) p < 0.001), while lower likelihood of reporting psychological distress was significantly associated with being married (OR = 0.78 (95% CI: 0.62–0.98), p = 0.031), employed (OR = 0.71 (95% CI: 0.57–0.88), p = 0.002), and living in a rural formal area (OR = 0.73 (95% CI: 0.55–0.97), p = 0.033).

Conclusion: There is a need to develop strategies to alleviate psychological distress in the general population, with a particular focus on those who may be more vulnerable to distress such as females, the aged, excessive alcohol users, the unemployed, people living with HIV and those residing in urban areas as identified in the current findings.

Introduction

Mental health is a public health priority globally; however, in low and middle-income countries mental health remains a low priority for health practitioners, as a concerted focus is on the prevention and control of infectious diseases (Prince et al., 2007; Sipsma et al., 2013). Poor mental health includes psychological distress, which refers to a perceived or actual threat experienced by an individual, that may be physiological or psychological (Andreou et al., 2011). Psychological distress is widely used in public health research as an indicator of population mental health, and is viewed as a multifaceted phenomenon, a product of synergies between biological, structural, psychosocial, and behavioural factors (Caron et al., 2012). Globally, psychological distress is a major contributor to the burden of disease, and the burden of disease is higher in low and middle-income countries including South Africa (SA) (Murray, Vos, Lozano, Naghavi & Flaxman, 2012; Prince et al., 2007).

Among South African adults, in 2012, the prevalence of psychological distress constituted 28.4%, with varying proportions of the intensity of distress such as 10.3% prevalence of moderate levels of distress, 4.2% prevalence of high levels of distress and 2.2% prevalence of very high levels of distress (Shisana & Labadarios, et al., 2014). Psychological distress has been shown to vary by socio-demographic factors which include age, gender, race, culture, ethnicity, religious contexts, household roles, educational achievement and socio-economic status (Canavan et al., 2013; Flisher & Gevers, 2010; Jackson et al.,...
Study design and sample

The study used data from the National HIV Prevalence, Incidence and Behaviour Survey, conducted in SA in 2012, which was based on a multistage stratified cross-sectional design described in detail elsewhere (Shisana & Rehle, et al., 2014). Briefly, 1000 enumeration areas (EAs) were selected from the 2001 population census areas and mapped by aerial photography to create the master samples that informed the sampling of households. A systematic probability sample of 15 houses was drawn from each of the 1000 randomly selected EAs. The selection of EAs was stratified by province and four locality types were defined, namely urban formal (formal settlements - with official governmental approval), urban informal (informal settlements - without official governmental approval), rural formal (including commercial farms) and rural informal localities (including tribal authority areas).

Persons of all ages living in the selected households were eligible to participate in the survey. Household and age-appropriate individual questionnaires were administered to consenting eligible individuals to solicit information on demographic characteristics, HIV-related knowledge, attitudes, and behaviours and health issues (Shisana & Rehle, et al., 2014). Dried blood spots (DBS) specimens collected by nurses were tested anonymously for HIV antibodies using a testing algorithm with three different immunoassays (Vironostika HIV Uni-Form II plus O, BioMerieux, Boxtel, The Netherlands; Advia Centaur XP, Siemens Medical Solutions Diagnostics, Tarrytown, NJ, USA; Roche Elecsys 2010 HIV Combi, Roche Diagnostics, Mannheim, Germany). A total of 42 950 individuals in the valid households were eligible to be interviewed, and 38 431 agreed to be interviewed. Of these, 25,860 responded to the 10-item scale used as a brief screening tool to identify the person’s level of psychological distress (Kessler et al., 2002). The K10 scale appraises items on how respondents felt during the previous 30 days on a 5-point Likert scale (1 = never, 2 = rarely, 3 = some of the time, 4 = most of the time, 5 = all of the time). In the original measure, raw scores are summed, and a total score indicates that respondents are likely to be well (score below 20), experiencing mild distress (score 20–24), moderate (score 25–29) or severe (score 30 and above) psychological distress (Andrews & Slade, 2001). For this analysis, due to the small number in each of the categories, the scores were dichotomized into those who scored < 20 (absence of psychological distress = 0) and those who scored ≥ 20 (presence of psychological distress = 1).

Measures

Psychological distress was based on the 10-item scale used as a brief screening tool to identify the person’s level of psychological distress (Kessler et al., 2002). The Kessler Psychological Distress Scale (K10) was used to measure psychological distress (Kessler et al., 2001). The K10 scale appraises items on how respondents felt during the previous 30 days on a 5-point Likert scale (1 = never, 2 = rarely, 3 = some of the time, 4 = most of the time, 5 = all of the time). In the original measure, raw scores are summed, and a total score indicates that respondents are likely to be well (score below 20), experiencing mild distress (score 20–24), moderate (score 25–29) or severe (score 30 and above) psychological distress (Andrews & Slade, 2001). For this analysis, due to the small number in each of the categories, the scores were dichotomized into those who scored < 20 (absence of psychological distress = 0) and those who scored ≥ 20 (presence of psychological distress = 1). Socio-demographic characteristics included sex, age, marital status, education level, employment status, and locality type. Information on HIV risk-related behaviours was collected among those who reported having ever had sexual intercourse, and included sexual partners in last 12 months, concurrent sexual partnerships, age disparate partnerships of 5 years or more, condom use at last sex, and consistent condom use. Risky alcohol use was also measured using the AUDIT risk score (0 = abstainers; 1–7 = low-risk drinkers; 8–19 = high-risk drinkers; 20+ = hazardous drinking) (Saunders, Aasland, Babor, de la Fuente, & Grant, 1993).

Statistical analysis

Descriptive statistics (frequency distribution and percentages) were used to characterize the prevalence of psychological distress by socio-demographic and HIV risk-related factors. Bivariate logistic regression models were used to identify potential factors associated with psychological distress. Statistically significant covariates from the bivariate analysis were entered into a multivariate logistic regression model to examine the independent effects of covariates associated with psychological distress. For all the analysis unadjusted and adjusted odds ratios (ORs) with 95% confidence intervals (CI) were used to measure the strength and direction of the association, and the level of significance at p ≤ 0.05. The “svy” command was used to introduce weights which take into account the complex design of the survey. All data were analysed using statistical software STATA version 13.0 (Stata Corp, College Station, Texas, USA).

Results

Prevalence of mental distress

Out of a total 25,860 participants 23.9% reported psychological distress. A significant proportion of females reported higher psychological distress than males. Reported psychological distress was also significantly higher among those 50 years and older, Black Africans, those not married, those with no education or with primary educational qualifications, the unemployed, and those living in urban informal areas (Table 1).

Psychological distress was also significantly higher among those who reported sexual partners at least 5 years older than them, condom use at last sex, consistent condom use, risky/hazardous and high risk/harmful alcohol users, and those whose serostatus was positive (Table 1).
Table 1
Reported psychological distress by socio-demographic characteristics and HIV risk-related factors among participants 15 years and older.

| SOCIO-DEMOGRAPHIC VARIABLES | n = 25,860 | % | 95% CI | p-value |
|------------------------------|------------|---|--------|---------|
| Sex                          |            |   |        |         |
| Male                         | 11,185     | 43 | 17.8-21.5 | < 0.001|
| Female                       | 14,675     | 57 | 25.8-29.9 |         |
| Age group in years           |            |   |        |         |
| 15-24                        | 6972       | 27 | 18.2-22.1 | < 0.001|
| 25-49                        | 11,341     | 44 | 22.9-27.0 | < 0.001|
| 50+                          | 7547       | 30 | 26.1-23.6 | < 0.001|
| Race groups                  |            |   |        |         |
| Black African                | 14,770     | 57 | 24.4-28.6 | < 0.001|
| Other                        | 11,029     | 43 | 13.2-16.8 |         |
| Marital status               |            |   |        |         |
| Not Married                   | 16,367     | 63 | 23.2-27.3 | < 0.001|
| Married                      | 9119       | 37 | 18.8-22.9 |         |
| Education level              |            |   |        |         |
| No education/Primary         | 4183       | 16 | 28.4-31.9 | < 0.001|
| Secondary                    | 15,590     | 60 | 21.5-25.3 | < 0.001|
| Tertiary                     | 2215       | 88 | 15.9-18.9 | < 0.001|
| Employment status            |            |   |        |         |
| No                           | 14,003     | 54 | 24.7-29.2 | < 0.001|
| Yes                          | 9497       | 37 | 19.3-21.2 |         |
| Locality type                |            |   |        |         |
| Urban formal                 | 15,339     | 59 | 21.1-25.7 | 0.03    |
| Urban informal               | 2591       | 10 | 25.7-35.3 |         |
| Rural informal               | 5453       | 21 | 20.9-27.8 |         |
| Rural formal                 | 2477       | 09 | 14.1-21.9 | < 0.001|
| HIV RISK-RELATED VARIABLES   | n = 25,860 | % | 95% CI | p-value |
| Sexual partners in last 12 months |        |   |        |         |
| One partner                  | 13,888     | 54 | 21.0-24.7 | 0.604   |
| More than two partner         | 1435       | 55 | 18.4-25.7 |         |
| Concurrent partnership       |            |   |        |         |
| No                           | 463        | 18 | 19.5-31.2 | 0.997   |
| Yes                          | 305        | 12 | 24.9-31.4 |         |
| Age disparate partnerships   |            |   |        |         |
| 5+ older                     | 3154       | 12 | 24.1-29.9 | < 0.001|
| 5+ younger                   | 2604       | 10 | 17.3-23.2 |         |
| Within 5 years older or younger | 9535   | 37 | 19.9-24.0 |         |
| Condom use last sex          |            |   |        |         |
| No                           | 10,447     | 40 | 19.6-23.4 | 0.004   |
| Yes                          | 4583       | 18 | 22.6-27.6 |         |
| Consistent condom use        |            |   |        |         |
| No                           | 11,608     | 45 | 20.2-23.8 | 0.032   |
| Yes                          | 3596       | 14 | 22.1-27.7 |         |
| Alcohol use risk score (AUDIT) |         |   |        |         |
| Abstainers (0)               | 14,344     | 55 | 22.9-27.5 | < 0.001|
| Low risk (1-7)               | 6219       | 24 | 15.9-19.7 |         |
| High risk drinkers (8-19)    | 2141       | 08 | 27.1-43.5 |         |
| hazardous (20+)              | 285        | 11 | 49.8-67.4 |         |
| Ever tested for HIV          |            |   |        |         |
| No                           | 9531       | 37 | 20.7-24.8 | 0.065   |
| Yes                          | 16,208     | 63 | 22.6-26.5 |         |
| Awareness of HIV status      |            |   |        |         |
| No                           | 15,662     | 61 | 21.7-25.4 | 0.227   |
| Yes                          | 9816       | 39 | 22.5-26.8 |         |
| HIV serostatus               |            |   |        |         |
| Negative                     | 17,531     | 68 | 20.9-24.7 | < 0.001|
| Positive                     | 2533       | 10 | 30.9-38.4 |         |

Factors associated with psychological distress

Table 2 shows unadjusted odds ratios for socio-demographic and HIV risk-related factors associated with psychological distress. The higher likelihood of reporting psychological distress was significantly associated with being female [OR = 1.57 (95% CI: 1.43-1.73), p < 0.001], age 25 to 49 years [OR = 1.32 (95%:1.17-1.48), p < 0.001] and 50 years and older [OR = 1.41 (95%: 1.23-1.61), p < 0.001], Black African [OR = 2.05 (95%: 1.71-2.44), p < 0.001], and residing in urban informal areas [OR = 1.43 (95%: 1.10-1.86), p < 0.001]. On the other hand, the lower likelihood of reporting psychological distress was significantly associated with being married [OR = 0.78 (95%: 0.69-0.89), p < 0.001], having secondary [OR = 0.78 (95%: 0.66-0.91), p = 0.002] and tertiary education [OR = 0.48 (95%:0.36-0.65), p < 0.001], being employed [OR = 0.65(95%: 0.58-0.74, p < 0.001], and living in rural formal areas [OR = 0.71 (95%: 0.52-0.95), p = 0.023].

The lower likelihood of reporting psychological distress was significantly associated with those who reported younger sexual partners...
The overall prevalence of reported psychological distress was 23.9%. In the final multivariate model higher likelihood of reporting psychological distress was significantly associated with those who reported condom use at last sex \([OR = 1.68 (95\% CI: 1.34-2.10), p < 0.001]\), ages 25 to 49 years \([OR = 1.35 (95\% CI: 1.08-1.70), p = 0.009]\) and 50 years and older \([OR = 1.44 (95\% CI: 1.06-1.97), p = 0.023]\), Black African \([OR = 1.62 (95\% CI: 1.24-2.10), p < 0.001]\), and those who reported high risk drinking \([aOR = 1.37 (95\% CI: 1.02-1.83), p = 0.037]\) and hazardous drinking \([aOR = 4.76 (95\% CI: 2.69-8.42), p < 0.001]\) as well as those reporting an HIV positive serostatus. Conversely, lower likelihood of reporting psychological distress remained significantly associated with marriage \([aOR = 0.78 (95\% CI: 0.62-0.98), p = 0.031]\), employment \([aOR = 0.71 (95\% CI: 0.57-0.88), p = 0.002]\), and residing in rural formal areas \([aOR = 0.73 (95\% CI: 0.55-0.97), p = 0.033]\).

### Discussion

In this nationally representative sample, the overall prevalence of reported psychological distress was 23.9%. In the final multivariate model higher likelihood of reporting psychological distress was significantly associated with being female, aged 25 and older, Black African, and being a hazardous or high risk drinker. The South African National Health and Nutrition Examination Survey (Shisana & Labadarios, et al., 2014), similarly reported a high prevalence of distress among females, Black Africans and older people. The prevalence of psychological distress was significantly higher among those who had seroconverted. HIV-related risk behaviours (i.e. condom use) did not yield significance in the final model. These results are contrary to previous literature that found a higher level of psychological distress among people who reported inconsistent condom use or no condom use (Lundberg, 2014; Smith, 2015). This finding may suggest that the unadjusted or crude relationship between risky sexual behaviour and psychological distress was distorted by confounding variables (gender and alcohol use) that were accounted for in the adjusted analysis (Elkington et al., 2010; Smith, 2015). Lower likelihood of reporting psychological distress was significantly associated with being married, employed and residing in rural formal areas.

In line with current findings, others studies have consistently identified socio-demographic characteristics such as being female, aged, not being married, belonging to a particular race group, and lower socioeconomic status as predisposing factors for psychological distress.

The current study also appears to be in agreement with literature that found marriage to have protective effects against psychological stress. This finding may be explained by the fact that the marital relationship is a primary source of social and emotional support for many adults (Mandemakers & Monden, 2010; Walters, McDonough, & Stroschein, 2002). These findings suggest that inequalities associated with gender, race, education, employment and poverty may have an impact on mental health and wellbeing. Regarding the higher likelihood of psychological distress with increasing age, there are varying observations about how age affects psychological distress.

Ethical Statement.

This study has identified risk and protective factors associated with psychological distress based on nationally representative data. While there is a need to develop strategies that mitigate psychological distress in the general population, a special focus should be given to females, older age groups, people living with HIV and risky alcohol users, while simultaneously addressing gender, racial and employment inequalities in order to lessen related stressors in the country.
