



The epidemiology of major depression in South Africa: Results from the South African Stress and Health study

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Background. Mental disorders are a major contributor to the burden of disease in all regions of the world. There are limited data on the epidemiology of major depressive disorder in South Africa.

Methods. A nationally representative household survey was conducted between 2002 and 2004 using the World Health Organization Composite International Diagnostic Interview (CIDI) to establish a diagnosis of depression. The dataset analysed included 4 351 adult South Africans of all racial groups.

Results. The prevalence of major depression was 9.7% for lifetime and 4.9% for the 12 months prior to the interview. The prevalence of depression was significantly higher among

females than among males. The prevalence was also higher among those with a low level of education. Over 90% of all respondents with depression reported global role impairment.

Conclusion. In comparison with data from other countries, South Africa has lower rates of depression than the USA but higher rates than Nigeria. The findings are broadly consistent with previous findings in South Africa. These findings are the first step in documenting a level of need for care in a context of significant under-funding of mental health services and research in South Africa

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Mental disorders are a major contributor to the burden of disease in all regions of the world, with about 14% of the global burden attributable to neuropsychiatric disorders.¹ Even in sub-Saharan Africa, a region with the highest burden of communicable disease, neuropsychiatric disorders account for nearly 10% of the total burden of disease.² Mental disorders are not only linked to many other health conditions, but are also among the most costly medical disorders in terms of projected health care expenditures needed to treat them.³

Epidemiological studies and data on prevalence rates of major depressive disorders in Africa are limited. Of the studies that have been completed, many have used clinic attendance as a recruitment method,⁴ thus introducing a potential bias. In South Africa, small rural-based studies have found a prevalence rate of depressive symptomatology of 18%⁵ and a

rate of depression of 27%.⁶ Other results include a prevalence of depression of 25.2%⁷ in an urban setting, while Cooper and colleagues⁸ found a 34.7% prevalence of postpartum depression in a peri-urban settlement in Cape Town. To date there have not been any nationally representative data on the prevalence of major depressive disorder in South Africa. In a resource-constrained setting such as South Africa, nationally representative data that include age of onset and role impairment comparisons are of crucial importance both in terms of highlighting the country's burden of disease and to enable targeting of limited intervention funding.

Method

Sample

The study formed part of the South African Stress and Health (SASH) study,⁹ which was part of the World Health Organization's World Mental Health (WMH) 2000 initiative. The SASH study is a national probability survey of adult South Africans living in households and hostel quarters (the latter were included to maximise coverage of young working-age males). Individuals of all race and ethnic backgrounds were included in the study. The sample was selected using a three-stage sample design. The first stage involved the stratified selection of primary sampling units based on the 2001 South African Census Enumeration Areas (EAs). The second stage involved the sampling of housing units within clusters selected in each EA. The third stage involved the random selection of one adult respondent in each sampled housing unit. Field interviewers made up to three attempts to contact respondents. A total sample of 5 089 households was selected for the SASH. Field interviews were obtained with 4 433 (87.1%) of the designated respondents. Based on quality control criteria, 4 351

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of the field interviews were retained for use in the analysis. There were no differences in response rates across racial groups.

Instruments

The diagnostic interview used in the SASH was the World Health Organization (WHO) Composite International Diagnostic Interview Version 3.0¹⁰ (CIDI 3.0), a fully structured lay-administered interview that generates diagnoses according to the criteria of both the *International Statistical Classification of Diseases and Related Health Problems*, 10th revision (ICD-10) and *Diagnostic and Statistical Manual*, 4th edition (DSM-IV) diagnostic systems, and has been widely used in epidemiological studies throughout the world. The CIDI was translated from English into six other languages used in South Africa (virtually all South Africans speak at least one of these languages), and then back-translated.

Respondents who were diagnosed with either 12-month or lifetime major depression were administered the Sheehan Disability Scale (SDS). The SDS assesses the extent to which depression interferes with functioning in the domains of work, household, relationship and social roles.¹¹ It is a 10-point visual analogue scale labelled none (0) to very severe (10). Respondents were also asked whether they had received treatment for emotional problems during the preceding 12 months.

Procedure

Interviewers were trained in the administration of the CIDI in centralised group sessions lasting 1 week. Two formal pre-tests of all of the survey questions were completed, with a total of over 50 respondents participating. The interviews were conducted face-to face in seven different languages: English, Afrikaans, Zulu, Xhosa, Northern Sotho, Southern Sotho and Tswana. The protocol was reviewed by the ethics committee of the Medical University of South Africa, and all subjects gave informed consent. Interviews lasted an average of 3½ hours, with some requiring more than one visit to complete. Data were collected between January 2002 and June 2004.

Statistical analysis

All analyses reported accounted for the complex survey design based on person-level weights that incorporated sample selection, non-response and post-stratification factors. Data were analysed using Stata Version 10.0 (Stata Corporation, College Station, USA).

Results

The total sample of 4 351 adults was largely female (53.7%) and black (76.2%), although other racial groups were represented (10.4% coloured, 10% white, 3.4% Indian/Asian). Further, half

were married, while most were unemployed (69.2%), had less than 12 years of education (62.7%), and lived in urban areas (59.7%) (Table I).

Prevalence of major depressive episode

The prevalence of major depressive episode (MDE) in the total sample was 9.7% for lifetime and 4.9% for the 12 months prior to the interview. The prevalence of MDE was significantly higher among female respondents, with females 1.75 times more likely to experience lifetime depression than males (95% confidence interval (CI) 1.3 - 2.4), and 2.17 times more likely to experience 12-month MDE than males (95% CI 1.5 - 3.2) (Table I).

Socio-demographic correlates

The prevalence of MDE was significantly higher among those with a low average level of education, people with Grade 1 - 7 schooling being 2.11 times more likely to have experienced lifetime MDE (95% CI 1.2 - 3.7) and 3.70 times more likely to have experienced 12-month MDE (95% CI 1.5 - 9.3) than those with higher levels of education (Table I). The prevalence of MDE was also significantly higher among people between the ages of 40 and 49 years, who were 1.71 times more likely to have experienced lifetime MDE (95% CI 1.3 - 2.3) than other age groups. No other socio-demographic correlates were related to either lifetime or 12-month MDE.

Age of onset and mean number of MDEs

The mean age of onset of MDE was 25.8 years for the total sample, 26 years for females and 25.6 years for males. There were no significant differences for mean number of lifetime episodes across age cohorts or between genders. Kaplan-Meier curves for age at onset of depression were generated for four groups defined by age at interview (18 - 29 years, 30 - 39 years, 40 - 49 years and >50 years). Risk is low until the early teens, and then begins to rise increasingly steeply in more recent cohorts (Fig. 1).

12-month treatment

In the past 12 months, 8.2% of people with lifetime major depressive disorder had spoken to a psychiatrist. People with major depression were 2.2 times more likely to report speaking to (or receiving treatment from) a psychiatrist in the past 12 months compared with those without lifetime major depression. Those with major depression were also over 2 times more likely to have spoken to another mental health professional, 1.47 times more likely to have spoken to a general practitioner, 2.03 times more likely to have spoken to a religious adviser, and over 2.5 times more likely to have spoken to a healer compared with those without lifetime major depression (Table II).

**Table I. Description of sample, according to prevalence of major depression**

	Total population	Lifetime DSM-IV major depression*		12-month DSM-IV major depression*	
		%	OR (95% CI)	%	OR (95% CI)
N (%)	4 351 (100%)	439 (9.7)	-	223 (4.9)	-
Demographic characteristics					
Mean age (yrs) (SE)	37.0 (0.26)	37.8	-	37.9	-
Age categories (yrs)					
18 - 29	39.1	32.7	-	31.9	-
30 - 39	22.1	23.4	-	23.8	-
40 - 49	18.1	24.5	-	22.5	-
≥50	20.7	19.4	-	21.8	-
Gender					
Male	46.3	33.9	1.0	28.8	1.0
Female	53.7	66.1	1.75 (1.3 - 2.4)	71.2	2.17 (1.5 - 3.2)
Race					
Black	76.2	75.4	1.0	72.5	1.0
Coloured	10.4	11.1	1.05 (0.8 - 1.5)	13.3	1.31 (0.9 - 2.0)
White	10.0	8.9	0.84 (0.3 - 2.2)	7.0	0.69 (0.2 - 2.2)
Indian/Asian	3.4	4.6	1.42 (0.7 - 3.0)	7.3	2.38 (1.0 - 5.7)
Currently married	50.1	48.3	0.78 (0.6 - 1.0)	52.5	0.95 (0.7 - 1.3)
Location					
Rural	38.4	35.1	1.0	35.1	1.0
Urban	61.6	64.9	1.15 (0.9 - 1.5)	64.9	1.15 (0.8 - 1.6)
SES tertile					
0	30.4	31.4	1.0	31.9	1.0
1	33.3	30.5	0.90 (0.7 - 1.2)	31.4	0.94 (0.6 - 1.4)
2	36.3	38.1	1.03 (0.7 - 1.5)	36.7	0.99 (0.6 - 1.6)
Socio-economic status					
Education					
None	6.8	4.9	1.0	3.3	1.0
Grade 1 - 7	19.1	27.6	2.11 (1.2 - 3.7)	32.6	3.70 (1.5 - 9.3)
Grade 8 - 11	35.4	33.8	1.36 (0.8 - 2.2)	36.1	2.18 (1.0 - 5.0)
Matric	23.5	21.5	1.38 (0.8 - 2.4)	13.9	1.28 (0.5 - 3.3)
Matric+	15.3	12.3	1.12 (0.6 - 2.1)	14.1	1.94 (0.7 - 5.4)
Employed	31.0	32.0	0.95 (0.6 - 1.4)	30.6	0.89 (0.6 - 1.4)
Income categories (R), personal (mean (SD))					
0	13.7	12.5	1.0	18.1	1.0
1 - 2 500	29.5	35.6	1.31 (0.8 - 2.2)	28.6	0.69 (0.4 - 1.2)
2 501 - 5 000	15.4	12.3	0.84 (0.5 - 1.4)	11.0	0.51 (0.3 - 1.0)
5 001 - 10 000	19.6	18.5	0.99 (0.6 - 1.8)	17.0	0.62 (0.3 - 1.3)
≥10 001	21.8	21.1	1.03 (0.6 - 1.8)	25.3	0.85 (0.4 - 1.7)

*Odds ratios adjusted for age categories.

Role impairment of 12-month MDE

Over 90% of respondents with a MDE reported global role impairment (using the Sheehan disability scale). Across all dimensions of the Sheehan scale the only significant gender difference was that women were more likely than men to report a home impairment ($p=0.037$) (Table III). Respondents with MDE reported a mean of 57 days out of role when, as a result of the depression, they were unable to perform their normal activities. Males over 50 years reported a markedly higher number of days out of role (128 days) than any other age cohort, while males in that age cohort reported almost three times the number of days out of role (128 days v. 66 days) than females of the same age.

Discussion

The prevalence of MDE in South Africa was 9.8% for lifetime and 4.9% for the past 12 months. These rates were lower than those found in the National Comorbidity Survey Replication,¹² where lifetime and 12-month prevalence rates were 16.2% and 6.6%, respectively. In the World Health Organization WMH survey prevalence rates for any mood disorder ranged from 3.3% in Nigeria to 21.4% in the USA, while projected lifetime risk for any mood disorder ranged from 7.3% in China to 31.4% in the USA.¹³ So while South African rates are lower than those in the USA they are considerably higher than an estimate in a recent survey of Yoruba-speaking Nigeria¹⁴ and higher than in the majority of other countries that have participated in the first wave of



Table II. Service use in the past 12 months by lifetime major depression

	Total population	DSM-IV major depression	No DSM-IV major depression	OR	p-value
Lifetime major depression					
N (%)	4 351 (100)	439 (9.7)	3 912 (90.3)		
Psychiatrist	4.3	8.2	3.9	2.20	0.001
Any other mental health professional*	3.5	6.4	3.2	2.07	0.011
General practitioner [†]	13.3	17.9	12.9	1.47	0.049
Traditional healer	6.5	9.0	6.2	1.50	0.067
Any other health professional [‡]	7.6	8.5	7.5	1.15	0.491
Religious or spiritual advisor [§]	6.9	12.0	6.3	2.03	0.001
Any other healer [¶]	2.2	4.8	1.9	2.59	<0.001
12-month major depression					
N (%)	4 351 (100%)	223 (4.9)	4 128 (95.2)		
Psychiatrist	4.3	12.6	3.9	3.56	<0.001
Any other mental health professional*	3.5	10.5	3.2	3.59	<0.001
General practitioner [†]	13.3	20.7	13.0	1.76	0.014
Traditional healer	6.5	10.8	6.3	1.82	0.024
Any other health professional [‡]	7.6	7.1	7.6	0.93	0.819
Religious or spiritual advisor [§]	6.9	10.2	6.7	1.58	0.087
Any other healer [¶]	2.2	6.9	2.0	3.65	<0.001

*Any other mental health professional, such as a psychologist, psychotherapist, psychiatric social worker, mental health nurse or mental health counsellor.

[†]A general practitioner or any other medical doctor.

[‡]Any other health professional, such as a nurse or physician's assistant.

[§]A religious or spiritual advisor, such as a minister, priest or rabbi.

[¶]Any other healer, such as a chiropractor or spiritualist.

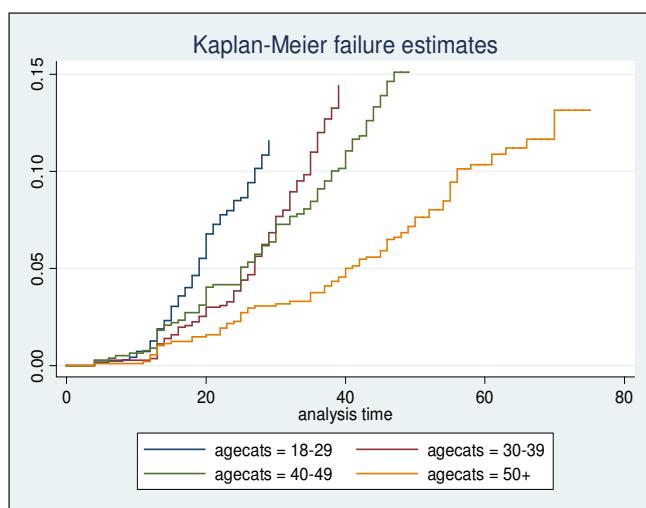


Fig. 1. Cumulative lifetime prevalence of MDE by birth cohort.

the WHO WMH initiative.¹⁵ The Nigerian figures are likely to be underestimates, which is underscored by Gureje and colleagues'¹⁶ recent finding that among people over the age of 65 in Nigeria the lifetime prevalence of major depressive disorder was 26.2% while the 12-month prevalence was 7.1%.

The high lifetime prevalence estimates for psychiatric disorders found here are broadly consistent with previous work in South Africa. A community prevalence study of psychiatric morbidity in a rural coloured village found a prevalence of psychiatric morbidity of 27.1%, with the majority of cases diagnosed with depressive or anxiety disorder.⁵

Similarly, the rate of depression in a local primary care clinic was 37%.¹⁷ The association of mood disorder with gender (female gender associated with higher rates of MDE) is consistent with findings in rich and low- and middle-income countries.

The mean age of onset (25.8 years for the total sample, 26 years for females and 25.6 years for males) is in line with the median age-of-onset distributions in both the National Comorbidity Survey¹² and the WMH survey¹³ and elsewhere, where age at onset is concentrated in the late 20s.¹⁸

The results regarding role impairment suggest that MDE is a seriously impairing condition, which is in line with other findings. In the South African context, the mean 57 days out of role is markedly higher than (for example) the 35.1 mean days out of role in the National Comorbidity Survey.¹² These data, together with the fact that males over 50 years reported 128 days out of role, has crucial implications for productivity in the workplace, considering that in a study of the effects of chronic medical conditions on work loss, the mean number of days out of role for most of the chronic conditions was less than 15.¹⁹

Such data have been criticised by those who argue that distress in the developing world should not be conflated with the presence of psychiatric disorders, and who question the applicability of the DSM classification system to non-Western countries.²⁰ There is growing acceptance, however, that psychiatric disorders, as classified by the DSM-IV and diagnosed by instruments such as the CIDI, are accompanied by significant social and occupational impairment. This is



Table III . Role impairment and depression, by sex

	Lifetime major depressive disorder			12-month major depressive disorder		
	Men (%)	Women (%)	<i>p</i> -value	Men (%)	Women (%)	<i>p</i> -value
Mean days out of role in the past 12 months (N)	72.6	51.2		72.6	51.2	
Home						
None	70.2	56.6	0.037	29.5	18.7	0.052
Mild	12.2	7.5		28.9	14.1	
Moderate	10.8	15.8		25.5	29.6	
Severe	3.6	11.8		8.6	22.1	
Very severe	3.2	8.3		7.5	15.5	
Work						
None	72.8	59.4	0.161	35.5	23.9	0.278
Mild	8.7	7.2		20.6	13.5	
Moderate	9.5	16.5		22.4	30.9	
Severe	4.6	12.6		11.0	23.5	
Very severe	44.8	4.4		10.6	8.2	
Relationships						
None	72.2	58.5	0.180	34.3	22.2	0.311
Mild	2.0	10.5		16.6	19.7	
Moderate	7.2	14.9		17.1	27.9	
Severe	8.2	12.6		19.3	23.6	
Very severe	5.4	3.6		12.7	6.7	
Social						
None	71.8	59.5	0.173	33.3	24.1	0.293
Mild	6.1	11.9		14.4	22.4	
Moderate	11.5	11.6		27.1	21.7	
Severe	3.9	11.0		9.2	20.5	
Very severe	6.8	6.1		16.0	11.4	
Any impairment	88.3	94.5	n/a	88.3	94.5	n/a

certainly borne out by our findings. Furthermore, research on pathogenesis and intervention has demonstrated that such disorders are associated with psychobiological dysfunction and that efficacious and cost-effective treatments are available, even in a developing-world context.^{21,22} This is not to minimise the potentially important effects of cultural context on the experience and expression of psychiatric disorders.

The paucity of data on mental disorders in low- and middle-income countries (LAMICs) significantly hampers the development of new and innovative interventions. The use of a standard instrument to detect depression renders us vulnerable to the criticism that we are potentially ignoring relevant culturally specific idioms of distress. Developing instruments that are culturally appropriate to the population being investigated is a useful approach, in that local idioms of distress are incorporated. One of the disadvantages of such instruments, however, is that they may limit between-country comparisons, and thus the cost-effective adaptation of innovative interventions that have been developed elsewhere. Clearly, both quantitative and qualitative research skills (combining both epidemiological and anthropological approaches) are needed in order to develop a full understanding of the presentation and prevalence of affective disorders and models of the most appropriate care.

There are important limitations that should be noted, all of which are likely to make the lifetime prevalence estimates here conservative.²³ People with psychiatric disorders have been shown in other countries to be less likely than others to participate in mental health surveys.²⁴ Another important limitation of the survey is the lack of clinical validation of the CIDI in the South African study. While results were reassuring in CIDI clinical validation studies carried out in conjunction with the WMH surveys in the USA²³ and Europe,²⁵ the cultural heterogeneity of the South African subjects might have impacted adversely on the diagnostic accuracy of the instrument.

Rigorous data on the proportion of the health budget spent on mental health services in the South African setting are not readily available, but there is consensus that a gross lack of parity exists, with significant under-funding of mental health services and research.²⁶ In addition, there is a lack of research related to developing mental health interventions that can be scaled up and that do not need to be delivered by mental health professionals – a critical intervention in LAMIC countries, given the existing human resource crisis. We hope that the data reported here take a first step in documenting a level of need for care that is sufficiently compelling to provide impetus for changes in mental health policy in South Africa,



with an appropriate increase in funding for mental health services.

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