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## TWELVE-MONTH TREATMENT OF PSYCHIATRIC DISORDERS IN THE SOUTH AFRICAN STRESS AND HEALTH SURVEY (WORLD MENTAL HEALTH SURVEY INITIATIVE)

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### Abstract

**Background**—The proportion of people with mental disorders in treatment is relatively small in low and middle income countries. However, little is known about patterns of recent service use in a country like South Africa.

**Methods**—A nationally representative household survey of 4351 adult South Africans was carried out. Twelve-month DSM-IV disorders were determined using the WHO Composite International Diagnostic Interview (CIDI). Prevalence and correlates of treatment were assessed among respondents with anxiety, mood and substance use disorders.

**Results**—One-fourth (25.5%) of respondents with a 12-month disorder had received treatment in the past 12 months either from a psychiatrist (3.8%), nonpsychiatrist mental health specialist (2.9%), general medical provider (16.6%), human services provider (6.6%), or complementary-alternative medical (CAM) provider (5.9%). Only 27.6% of severe cases had received any treatment. In addition, 13.4% of respondents with no disorder had accessed services in the past year. Blacks were significantly more likely than other racial groups to access the CAM sector while Whites were more likely to have seen a psychiatrist.

**Conclusions**—The majority of South Africans with a 12-month mental disorder have unmet treatment needs. In addition to a greater allocation of resources to mental health services, more community outreach and awareness initiatives are needed.

### INTRODUCTION

Cross-national studies indicate that the proportion of people with mental disorders in treatment is much lower in low- and middle- income countries than in high-income countries [1]. This is not surprising given that low- and middle- income countries spend less than 1% of their health budget on mental health and have relatively fewer treatment facilities and personnel than high-income countries [2]. Given the low percentage of people with mental disorders in treatment, it is especially important for low- and middle- income countries to be thoughtful of the allocation of mental health treatment resources to patients with the greatest

need for whom cost-effective treatments are now available. However, such rational allocation requires access to information on patterns and correlates of mental health treatment that are generally unavailable owing to the lack of sophisticated needs assessment tracking systems. One way to help address this problem is to carry out periodic epidemiological surveys that provide mental health policy-makers with information that may be used to estimate the magnitude of need for treatment and correlates of unmet need. In an effort to help facilitate the implementation of such surveys, the World Health Organization (WHO) established the World Mental Health (WMH) Survey Initiative with a focus on aggregate estimates of prevalence, severity and treatment [1]. The current report follows on a series of reports from the WMH carried out in South Africa, which present information on lifetime and 12-month prevalence of DSM-IV mental disorders among South Africans [3; 4].

Post-apartheid South Africa (SA) has inherited a legacy of racially inequitable, fragmented, and inadequately resourced mental health care services [5; 6]. However, democratization in 1994 and the introduction of a White Paper for the Transformation of the Health System in South Africa [7] and a new legislative framework in the form of a new Mental Health Care Act [8] paved the way for more equitable, comprehensive, accessible, and community-centred mental health services. Nevertheless, racial inequality in psychiatric care continues to exist and psychiatric services continue to be poorly developed in rural areas [6] and more accessible to White patients [9]. Further, stigma and misinformation about mental illness also contributes to delayed help-seeking, poor treatment choice, and fairly substantial financial costs stemming from incorrect management [10; 11; 12]. Based on Census-derived population estimates, South Africans in 2004 had 4.6 visits per person per year to primary health care facilities (calculated from primary health care headcount < 5 years divided by the population < 5 years) [13]. Service utilization is dependent on factors such as accessibility, acceptability and appropriateness of services as well as the legacy of apartheid with its gross inequity in resources and personnel [13].

Despite being in the twelfth year of democracy, low levels of mental health service provision continue to exist, with much variability between provinces [14]. There are fewer than 20 specialized psychiatric hospitals and only about 300 psychiatrists for a population of about 44 million [6]. There is also an overemphasis on hospital-based treatment and most psychiatric public sector staff are located in hospital settings, with substantial unmet need in the community [15]. In a cross-sectional survey that used population data derived from the 1996 census, the overall staff/population ratio in SA public sector mental health services was found to be 19.5 per 100,000 of the population, with an interprovincial range of 5.7–31.5 [16]. In terms of individual staff categories, this amounted to 0.4 (0.1–0.8) per 100,000 for psychiatrists and 0.3 (0.0–1.0) per 100,000 for psychologists and community health workers. Notably, the ratio of ambulatory psychiatric service staff to daily patient visits was 0.6, and this included staff such as nurses, occupational therapists, social workers, community health workers, psychologists, psychiatrists, and medical officers [17].

To date there are no national estimates detailing the extent and type of recent service usage among patients with mental disorder. This study describes the patterns and predictors of 12-month treatment usage in a nationally representative sample of South Africans. Data on the twelve month prevalence and severity of DSM-IV disorders in this sample, and their sociodemographic correlates, were recently reported [4].

## METHODS

### Sample

The South African Stress and Health Study (SASH) was a national probability sample of 4,351 adult South Africans living in both households and hostel quarters (many economically active males live in group hostel quarters in the country) [18]. Hostel quarters were included to maximize coverage of young working age males. The sample did not include individuals in institutions or in the military. Individuals of all racial and ethnic backgrounds were included in the study. The sample was selected using a three-stage stratified and clustered area probability sample design. The first stage involved the selection of stratified probability sample of primary sample areas based on the 2001 South African Census Enumeration Areas (EAs). The second stage involved selection of a probability sample of housing units from each EA. The third stage involved the random selection of one adult respondent in each sampled housing unit without replacement. The final sample of participating respondents was weighted to adjust for differential probabilities of selection within households, for differential non-response with regard to demographic and geographic factors, and for residual discrepancies between the sample and the population on a range of demographic and geographic factors available in the population.

SASH interviewers were extensively trained in centralized group sessions lasting one week. Only interviewers who demonstrated that they had mastered the administration of the survey instrument by the end of training were allowed to work in the field. The interviews were conducted face to face in seven different languages: English, Afrikaans, Zulu, Xhosa, Northern Sotho, Southern Sotho and Tswana. Interviews lasted an average of three and a half hours, with many requiring more than one visit to complete. Data were collected between January 2002 and June 2004. The overall response rate was 85.5%. All recruitment, consent and field procedures were approved by the Human Subjects Committees of the University of Michigan, Harvard Medical School, and by a single project assurance of compliance from the Medical University of South Africa (MEDUNSA) that was approved by the National Institute of Mental Health.

### Measures

Version 3.0 of the WHO Composite International Diagnostic Interview (CIDI 3.0) [19] was used to assess the presence of DSM-IV and ICD-10 disorders [20; 21; 22]. The translation of the English version of the CIDI into the five other languages used in the SASH was carried out according to WHO recommendations of iterative back-translation conducted by panels of bilingual and multilingual experts [20]. Discrepancies found in the back-translation were resolved by consensus of an expert panel, comprising clinicians and researchers. The expert panel produced a list of problematic terms for translation into the various languages and the agreed-upon translations. Disagreements found in the backtranslation were resolved by consensus. Two formal pretests of all of the survey questions were completed with a total of over 50 respondents participating. The length of the instrument emerged as a major problem resulting in some questions, including entire modules, being dropped in an effort to shorten the WMH-CIDI questionnaire [21]. Mental disorders assessed in the SASH study were: anxiety disorders (panic disorder, agoraphobia, social phobia, generalized anxiety disorder, post-traumatic stress disorder), mood disorders (major depressive disorder, dysthymia), substance use disorders (alcohol abuse, alcohol dependence, drug abuse, drug dependence), and intermittent explosive disorder. DSM-IV organic exclusion rules and diagnostic hierarchy rules were applied to all diagnoses, except in the case of substance use disorders where abuse was defined with or without dependence. Good inter-rater reliability, test-retest reliability, and validity have been found in earlier versions of the CIDI and acceptable validity of CIDI diagnoses compared to clinician diagnoses (based on blinded clinical

reappraisal interviews) were found in other WMH methodological studies [22;23]. Moderate to good individual-level CIDI-SCID concordance has been documented for lifetime prevalence estimates of most disorders. Additional cross-national comparisons of the validity of CIDI diagnoses in the WMH surveys are in progress.

### Treatment

The mental health service utilization module of the questionnaire began with introductory questions about lifetime visits or talks about mental health problems with each of seven types of treatment providers: psychiatrist, other mental health professional (psychologist, psychotherapist, psychiatric social worker, mental health nurse, mental health counselor), traditional healer, general practitioner or other medical doctor, any other health professional (nurse or physician's assistant), spiritual advisor (minister, priest, or rabbi), or any other healer (chiropractor or spiritualist). All respondents were asked if they had seen any of these providers for problems with their emotions, nerves, mental health or use of alcohol or drugs in the past 12 months. For each type of professional, there was an assessment of the number of visits in the past 12 months, the duration of the visit, and treatment continuation/discontinuation.

From the service utilization grid of 17 questions, broad categories of providers were developed by collapsing service providers into groups: *Psychiatrist, Other Mental Health Care Specialist* (including hospital visit in a mental health setting, treatment by either a psychologist or some other non-psychiatrist mental health provider, treatment in a mental health setting by a social worker or counselor), *General Medical [GM]* (other medical doctor or nurse), *Human Services* (religious provider, social worker or counselor in a non-mental health setting), and any *Complementary and Alternative Medicine [CAM]* (traditional healer, any other healer like a chiropractor or spiritualist). Further, treatment was divided into dichotomous variables of 'Any Healthcare' services (Psychiatrist, Other Mental Health Care Specialist, General Medical) and 'Any Non-Healthcare' services (Human Services or CAM).

### Severity

Cases that met 12-month criteria for at least one disorder were classified in terms of clinical severity into the categories serious, moderate, or mild. Cases rated serious had at least one of the following: substance dependence with a physiological dependence syndrome, a suicide attempt in the past 12 months, severe self-reported impairment in at least two areas of role functioning as assessed by the Sheehan Disability Scale (SDS) [24], or overall self-reported functioning impairment at a level consistent with a Global Assessment of Functioning [25] score of 50 or less. Cases not classified serious were classified moderate if the individual had moderate role impairment in at least two domains of the SDS or had substance dependence without a physiological dependence syndrome. All other cases of 12-month disorder were classified mild.

### Sociodemographic correlates

Sociodemographic correlates include age, sex, race (Black, Coloured [mixed race], Indian, White), education (none, some primary, some secondary, some university or more), marital status (married, formerly married, never married), and income. Per capita income was calculated by dividing household income by the number of household members and defining four income categories as follows: low income was defined as less than half the median income per family member of the entire sample. Low-average income was defined as income one-half to the whole of the median per capita income of the sample, high-average income was defined as income between one and two times the median per capita income and high income was defined as greater than twice the median.

## Data analysis

In order to account for the stratified multistage sample design, the data were weighted to adjust for differential probability of selection within households as a function of household size and clustering of the data, and for differential non-response. A post-stratification weight was also used to make the sample distribution comparable to the population distribution in the 2001 South African Census for age, sex, and province (Table 1). The weighting and geographic clustering of the data were taken into account in data analyses by using the Taylor series linearization method in the SUDAAN statistical package [26]. Logistic regression analysis [27] was used to study sociodemographic correlates. Logistic regression coefficients and their design-corrected standard errors were exponentiated and are reported here as odds ratios (ORs) and 95% confidence intervals (CIs).

Patterns of service use were established by calculating proportions in treatment and the median numbers of visits among those in treatment. To assess sociodemographic and disease predictor variables of receiving any treatment within the past 12 months, logistic regression analysis was conducted. Sociodemographic variables included age (18–34, 35–49, 50–64, 65+ years), education (0–6, 7–9, 10–12, 13+ years of education), gender, marital status (never married, separated/widowed/divorced, married/cohabiting), income (categorized as low, low average, high average, and high); while diagnostic variables (yes/no) included any anxiety, any mood, and any substance use disorder. In logistic regression analysis, multivariate significance tests were calculated using the Wald  $\chi^2$  tests. Statistical significance was based on 2-sided tests set at  $p < 0.05$ .

## RESULTS

Table 1 shows the sociodemographic distribution of the sample compared with census population data (weighted and unweighted). For all subsequent tables discussed, a cell is represented as ‘ – ’ (i.e. too small to measure) when the denominator is less than 30.

### Prevalence of 12-month service use

Table 2 shows the percent of people with mental disorders being treated by a health care professional. Impulse control disorders were not included in the analysis owing to small cell sizes.

Overall, the proportion of respondents in the sample who reported any form of treatment in the prior year was 15.4%; 25.5% of participants with a 12-month DSM-IV disorder and 13.4% with no disorder. Among the 12-month cases, treatment was most commonly received from a general medical (GM) provider (16.6%), followed by human services provider (6.6%), complementary and alternative medical provider (CAM) (5.9%), psychiatrist (3.8), and nonpsychiatrist mental health specialist (2.9%) (Table 2). Per service sector, the proportion of cases versus non cases receiving treatment in the mental health specialty service sector was greater than in the GM, HS or CAM sectors.

Most treatment took place in the health care sector (11.5% of respondents) and, within the health care sector, the GM sector (10.2% of respondents). It is noteworthy that a higher proportion of respondents (with and without disorder) were seen in the CAM sector (3.7%) than in the mental health specialty sector (2.5%) (Table 2).

The proportion of respondents with a disorder who received treatment was lowest for alcohol abuse (16.6%) and highest for drug abuse (43.1%) (data not shown in Table 2). Among respondents with an anxiety disorder, service use was highest for social phobia (39.7%), followed by generalized anxiety disorder (31.8%), panic disorder (25.8%), and agoraphobia (23.4%). Less than a quarter of respondents with a mood disorder (22.6%)

accessed any service. For respondents both with and without a disorder, treatment was primarily received in the health care sector (compared with non-health care). Of those with a disorder, only 3.8% had seen a psychiatrist in the last 12 months compared to 16.6% who had received treatment in the general medical sector.

### Mean number of visits

The mean number of visits in the past year is shown in Table 3. Overall, the mean number of visits among those receiving any treatment was 4.6, with no significant differences in mean visits noted for those with (4.9) and without (4.5) any disorder. For respondents both with and without any disorder, the highest mean number of visits occurred in the sector of “any mental health care” specialty. For respondents with a disorder, the mean number of visits for respondents receiving any treatment was highest for those with an anxiety disorder (6.0) and lowest for those with a substance disorder (3.8). Within-sector means were highest for psychiatrist (6.6) and lowest for CAM (2.2).

### Service Use by Severity of Mental Disorder

A similar proportion of mild (23.1%), moderate (26.6%) and severe (26.2%) cases had received any treatment in the past year. In terms of the mental health specialty sector (psychiatrist or other Mental Health Care specialist) use, the relationship between severity of disorder and the use of this sector was significant ( $\chi^2 = 15.4$ ), with 35.9% of severe cases, 19.7% of moderate cases, 15.5% of mild cases and 14.1% of cases with diagnosable mental disorder consuming mental health specialty services.

### Sociodemographic and disorder predictors of treatment

Table 4 presents socio-demographic and diagnostic predictors of receiving any treatment. The only significant predictor of treatment was marital status, with separated/divorce/widowed individuals more likely to have received treatment in the past 12 months. Older individuals (65+) had the lowest odds of receiving treatment, with respondents in the middle years of life generally more likely to receive services than either those in the younger or older age categories. Individuals with any substance use disorder had a higher odds of receiving treatment. Similarly, the presence of a substance use disorder was associated with an elevated odds of receiving treatment. However, the latter two variables were only marginally significant ( $p=0.06$ ;  $p=0.07$ , respectively). The presence of any past-year mood or anxiety disorder did not significantly predict treatment use. Of note, race did not predict treatment use.

As shown, the association between race and treatment was shown to differ by sector. Blacks were significantly more likely than other racial groups to access the CAM sector while Whites, compared with other racial groups, were more likely to see a psychiatrist or other mental health provider (Table 5)

## DISCUSSION

These results indicate that health service usage is disturbingly low among South Africans with the vast majority of individuals with psychiatric disorders not receiving any form of treatment during the past 12 months. In fact, only one quarter of people with a mental disorder received any treatment and those who received treatment typically attended few sessions. Such a small number of visits are inconsistent with treatment adequacy based on published treatment guideline recommendations [28; 29; 30]. The proportion of people who reported any 12-month service use (15.4 %) is very similar to the proportion reported in the WMH Survey in the United States [1]. However, the proportion of cases in treatment and the distribution of service use across sectors differs between the two countries. For example, the

proportion of cases in treatment is lower (25.5%) in South Africa than in the United States (41.1%). Similarly, a lower proportion of cases in this study (5.5%) received treatment in the mental health specialty sector compared with the National Comorbidity Survey Replication (NCS-R) (21.7%) [31].

The treatment proportions reported here are considerably higher than those found in some low- and low- middle income WMH survey countries, such as Nigeria (1.9 %), China (3.4%), Mexico (5.1%), and Ukraine (7.2%) [32; 33; 34; 35]. The proportion of non-cases in treatment was sizeable, and considerably higher than the proportion of non-cases in treatment seen in other low (e.g. Nigeria) and low-middle (e.g. China, Ukraine), high-middle (e.g. Mexico, Lebanon) and high-income WMH survey countries (e.g. Israel, Belgium, Spain, Japan) [1; 35]. Whether this is attributable to the population being more prone to somatization or to clinicians being more prone to overtreatment is unclear. Certainly, consumption of valuable resources and [mis] allocation of resources may contribute to unmet need in a country with limited and uneven distribution of health resources. Such allocation is particularly concerning in the light of few people receiving an adequate number of visits to meet treatment guideline standards [28; 29; 30]. Furthermore, the low overall dose-response relationship between disorder severity and probability of service use is concerning and may reflect inconsistencies with disorder severity ratings using the WMH-CIDI, and an underestimation of the severity of some disorders. In many other countries, a clear dose-response relationship exists between the severity of mental disorder and service usage [35; 36; 37]

In 2003, at the time that this survey was conducted, the proportion of South Africans estimated to be dependent on public health sector services (relative to private health services) was 87.7% [38]. It was also estimated that per 100,000 of the population accessing the public health sector, there were only 107.1 professional nurses, 19.7 medical practitioners, 8.9 medical specialists (including psychiatrists), and 1 psychologist [38]. In addition to the shortage of health personnel, barriers of language and culture remain formidable. The majority of the population is Black while the dominant models of practice are grounded in Western thought and culture. While it is imperative in a multicultural society that the mental health care system accommodate multiple cultural formulations of illness and treatment modalities [39; 40], a clear shortage of Black psychiatrists exists in the country. Not uncommonly practitioners and patients are from profoundly different cultures, speak and/or think in different languages and hold different belief systems about mental illness which compromises provision of meaningful treatment. Notably, more respondents in the survey were seen in the CAM than the mental health specialty sector, and this was particularly true for Black respondents. This is not surprising given the extensive use of indigenous traditional healers by Black patients. Traditional healers are often consulted before seeking Western-based care [41; 42].

Service use varied according to diagnosis. Highest treatment rates were for drug abuse followed by social phobia and generalized anxiety disorder, and this was primarily received in the general medical treatment sector. Arguably, the demand for and access to services for many respondents with substance use disorders may be facilitated by the social welfare and criminal justice sectors. In contrast, once treatment is initiated respondents with alcohol and drug use problems account for fewer patient visits than those with anxiety and mood disorders. With respect to socio-demographic variables, older respondents were the least likely to access services and this may be explained, in part, by the greater perceived stigma of mental disorders and treatments among people in this age group documented in other studies [43; 44]. In a cross-national comparison of mental health service use in 17 WMH countries, which included South Africa, marital status was also related to service use in several other countries [35], with those who were married being less likely than those who

were unmarried to receive services. Relationship strife and loss may be motivating factors for treatment seeking and may explain the higher service use among separated, divorced or widowed individuals [43]. Expectedly, while race differences were not significant, Whites were more likely than other race groups to access mental health services. The pattern is similar to the United States, where the percentage of African Americans with a mental illness receiving needed care is only half that of non-Hispanic Whites [45; 46]. The absence of other sociodemographic predictors is inconsistent with previous studies, including the NCS-R study, that have found certain groups (age, gender) to be at higher risk of receiving no psychiatric treatment or alternatively inadequate treatment [31; 47; 48].

Several limitations deserve mention: first, reliance on respondents' recall of treatment of the past 12 months; second, exclusion of respondents with DSM-IV disorders not contained in the WMH-CIDI (e.g. obsessive compulsive disorder); third, exclusion of schizophrenia and other psychotic disorders from the WMH surveys because earlier validation studies had shown they are over-estimated in lay-administered interviews like the CIDI [48; 49]; fourth, exclusion of respondents living out of the sampling frame (namely, those in institutional settings and in the military); fifth, missing data especially related to number of visits in the past 12 months; and sixth, while there is evidence for reliability and validity of the different language versions of the CIDI in other countries, reliability and validity of the translated versions used in the South African survey was not established [23]. It is also true that diagnoses obtained by the CIDI are determined by criteria based on Western definitions of psychopathology and may not capture some of culturally bound syndromes that have been described, mainly among indigenous African groups in the country. In addition, estimation bias resulting from survey nonresponse and difficulties with interview administration and resulting missing data/ errors in the CIDI skip pattern may have lowered prevalence estimates of disorder and consequently estimates of treatment [1]. Finally, we were unable to examine adequacy of treatment for those who were in treatment as the SASH survey did not include questions on treatment adequacy. Nevertheless, the findings described here are instructive as they show that mental disorders among South Africans most often go untreated and that efforts are clearly needed to improve access of those in need to existing mental health services. Eliminating deterrents to service utilization, in particular stigma and inadequate referral systems between medical and mental health services will also be important in this regard.

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**Table 1**

Sociodemographic distribution of the South African sample (2002–2004) compared to the 2001 Census&gt;

	Unweighted (%)	Weighted (%)	2001 Census (%)
<b>Sex</b>			
Male	39.8	46.3	46.8
Female	60.2	53.7	53.2
<b>Age</b>			
20–34	47.1	47.2	45.5
35–49	31.2	30.4	30.5
50–64	15.8	16.9	15.3
65+	5.9	5.5	8.7
<b>Race</b>			
Black African	76.2	76.2	79.0
Coloured	12.9	10.4	8.9
Indian or Asian	3.7	3.4	2.5
White	7.2	10.0	9.6
<b>Province</b>			
Eastern Cape	14.2	13.1	13.3
Free State	9.7	6.2	6.2
Gauteng	13.6	23.0	22.2
Kwazulu Natal	17.2	19.5	20.2
Limpopo	9.6	10.5	10.5
Mpumalanga	9.5	6.6	6.6
Northern Cape	5.4	1.9	1.3
North West	10.4	8.3	8.3
Western Cape	10.3	11.1	10.8

**Table 2**  
Prevalence of 12-Month Service Use in Separate Service Sectors by 12-month WMH-CIDI disorders

Mental Disorder	Psychiatrist	Other Mental Healthcare	Any Mental Healthcare	General Medical	Any Healthcare	Human Services	CAM	Any Non Healthcare	Any Treatment
Any Anxiety Disorder	3.7 (1.1)	3.9 (1.2)	6.2 (1.7)	20.1 (2.5)	22.5 (2.7)	6.6 (1.7)	5.4 (1.3)	11.5 (2.0)	27.2 (2.9)
Any Mood Disorder	4.2 (1.7)	4.4 (1.6)	6.8 (2.6)	10.9 (2.4)	15.1 (3.0)	5.5 (1.6)	6.6 (2.0)	11.3 (2.5)	22.6 (3.6)
Any Substance Disorder	4.4 (1.9)	1.4 (0.6)	5.5 (2.0)	16.4 (3.0)	19.1 (3.2)	6.2 (2.1)	7.9 (2.2)	13.6 (2.8)	27.6 (3.9)
No Disorder	3.8 (0.9)	2.9 (0.7)	5.5 (1.3)	16.6 (1.8)	19.0 (1.9)	6.6 (1.4)	5.9 (1.0)	12.0 (1.7)	25.5 (2.5)
Total Sample	1.7 (0.3)	1.1 (0.2)	2.5 (0.4)	10.2 (0.8)	11.5 (0.8)	3.7 (0.4)	3.2 (0.3)	5.7 (0.5)	13.4 (0.9)
									15.4 (0.9)

Values are percents with standard errors in parenthesis.

Disorders with unweighted n less than 30 do not have percents.

CAM=Complementary and Alternative Medicine

Table 3

Mean Number of Visits in the Past Year

Mental Disorder	Psychiatrist	Other Mental Healthcare	Any Mental Healthcare	General Medical	Any Healthcare	Human Services	CAM	Any Non Healthcare	Any Treatment
Any Anxiety Disorder	-	-	-	3.4 (0.3)	5.9 (1.4)	-	-	2.7 (0.2)	6.0 (1.2)
Any Mood Disorder	-	-	-	-	4.2 (0.5)	-	-	-	4.1 (0.5)
Any Substance Disorder	-	-	-	2.7 (0.2)	3.4 (0.3)	-	-	-	3.8 (0.5)
Any No Mental Disorder	-	-	7.2 (2.9)	3.2 (0.2)	4.9 (0.9)	3.2 (0.4)	2.0 (0.1)	2.7 (0.2)	4.9 (0.7)
Total Sample	5.8 (2.2)	2.9 (0.2)	5.2 (1.5)	3.3 (0.2)	3.9 (0.3)	4.2 (0.5)	2.3 (0.2)	3.6 (0.3)	4.5 (0.3)
	6.6 (2.1)	3.2 (0.2)	5.9 (1.4)	3.3 (0.2)	4.2 (0.4)	3.9 (0.4)	2.2 (0.1)	3.4 (0.2)	4.6 (0.3)

Values are means with standard errors in parenthesis.

Cells with unweighted n less than 30 do not have means.

CAM=Complementary and Alternative Medicine

**Table 4**Sociodemographic and Disorder Predictors of Receiving *Any* Treatment

Model Effect	Effect Level	Any Treatment
<b>Age</b>	18–34	8.2 (1.5, 46.1)
	35–49	8.8 (1.7, 45.0)
	50–64	8.7 (1.6, 46.3)
	65+	1.0 (1.0, 1.0)
	Overall Test of Effect	Wald-Chi 3 df = 7.3, P-Value = .062
<b>Any Anxiety</b>	Yes	1.4 (0.9, 2.2)
	No	1.0 (1.0, 1.0)
	Overall Test of Effect	Wald-Chi 1 df = 2.2, P-Value = .140
<b>Any Mood</b>	Yes	0.9 (0.5, 1.6)
	No	1.0 (1.0, 1.0)
	Overall Test of Effect	Wald-Chi 1 df = 0.2, P-Value = .618
<b>Any Substance</b>	Yes	1.8 (0.9, 3.3)
	No	1.0 (1.0, 1.0)
	Overall Test of Effect	Wald-Chi 1 df = 3.3, P-Value = .067
<b>Education</b>	1. 0–6 years education	1.5 (0.5, 4.1)
	2. 7–9 years education	1.0 (0.5, 2.3)
	3. 10–12 years education	0.8 (0.4, 1.5)
	4. 13+ years education	1.0 (1.0, 1.0)
	Overall Test of Effect	Wald-Chi 3 df = 3.5, P-Value = .319
<b>Income</b>	Low	1.2 (0.7, 2.2)
	Low Average	0.9 (0.5, 2.0)
	High Average	1.3 (0.6, 2.9)
	High	1.0 (1.0, 1.0)
	Overall Test of Effect	Wald-Chi 3 df = 1.5, P-Value = .689
<b>Marital Status</b>	Never Married	0.6 (0.3, 1.1)
	Separated/Widowed/Divorced	1.6 (0.8, 3.5)
	Married/Cohabiting	1.0 (1.0, 1.0)
	Overall Test of Effect	Wald-Chi 2 df = 7.3, P-Value = .026*
<b>Sex</b>	Male	0.7 (0.4, 1.1)
	Female	1.0 (1.0, 1.0)
	Overall Test of Effect	Wald-Chi 1 df = 2.9, P-Value = .087
<b>Race</b>	White	1.2 (0.6, 2.6)
	Indian	0.8 (0.3, 2.3)
	Coloured	0.6 (0.3, 1.1)
	Black	1.0(1.0, 1.0)
	Overall Test of Effect	Wald-Chi 3 df = 1.5, P-Value = .212

Sociodemographic and disorder predictors from a logistic regression model of nay 12-month service use containing all covariates shown.

\* Significant at the 0.05 level, two-sided test

Reference group: Black



**Table 5**

Race as a Predictor of Treatment for Any 12-Month Disorder by Service Sector

Model Effect	Effect Level	Any Treatment Given Any 12-Month Disorder
Any health	White	1.7 (0.9, 3.0)
	Indian	1.0 (0.3, 2.9)
	Coloured	0.8 (0.3, 1.8)
	Black	1.0 (1.0)
		Wald-Chi 3 df =2.6, P-Value = .46
Any non-health	White	0.2 (0.0, 1.1)
	Indian	1.1 (0.3, 4.3)
	Coloured	0.2 (0.1, 0.8)
	Black	1.0 (1.0)
		Wald-Chi 3 df =15.7, P-Value = .002*
Any mental health	White	11.2 (4.7, 26.7)
	Indian	3.9 (0.7, 21.6)
	Coloured	3.0 (1.1, 8.3)
	Black	1.0 (1.0)
		Wald-Chi 3 df =6.1, P-Value = .12
Any CAM	White	0.4 (0.0, 2.3)
	Indian	0.2 (0.0, 1.6)
	Coloured	0.04 (0.0, 0.3)
	Black	1.0 (1.0)
		Wald-Chi 3 df =17.7, P-Value = .001*
General Medicine	White	0.9 (0.5,1.5)
	Indian	1.1 (0.4, 3.2)
	Coloured	0.6 (0.3, 1.6)
	Black	1.0 (1.0)
		Wald-Chi 3 df =1.1, P-Value = .77
Human Services	White	--
	Indian	2.1 (0.5, 9.4)
	Coloured	0.5 (0.1, 1.6)
	Black	1.0 (1.0)
		Wald-Chi 3 df =7.9, P-Value = .06
Other mental health	White	5.2 (2.2,12.6)
	Indian	--
	Coloured	1.7 (0.4,7.6)
	Black	1.0 (1.0)
		Wald-Chi 3 df =8.8, P-Value = .04*

Model Effect	Effect Level	Any Treatment Given Any 12-Month Disorder
Psychiatrist	White	14.3 (4.7, 43.6)
	Indian	7.8 (1.2, 48.2)
	Coloured	5.2 (3.2)
	Black	1.0 (1.0)
	Overall Test of Effect	Wald-Chi 3 df =7.9, P-Value = .06

	Black	Coloured	White	Indian
Any Treatment given 12 month disorder	25.7%	16.5%	30.1%	24.8%

\* Significant at the 0.05 level, two-sided test

Reference group: Black

Note. Percent of respondents receiving any treatment by race.

Blacks report higher rates of Complementary and Alternative Medicine Treatments (CAM) than do other racial groups. Other racial groups are more likely to see a Psychiatrist or Other Mental Health Provider than blacks.