Lifetime and 12-month prevalence of mental disorders in the Nigerian Survey of Mental Health and Well-Being

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Background Large-scale community studies of the prevalence of mental disorders using standardised assessment tools are rare in sub-Saharan Africa.

Aims To conduct such a study.

Method Multistage stratified clustered sampling of households in the Yoruba-speaking parts of Nigeria. Face-to-face interviews used the World Mental Health version of the Composite International Diagnostic Interview (WMH–CIDI).

Results Of the 4984 people interviewed (response rate 79.9%), 12.1% had a lifetime rate of at least one DSM–IV disorder and 5.8% had 12-month disorders. Anxiety disorders were the most common (5.7% lifetime, 4.1% 12-month rates) but virtually no generalised anxiety or post-traumatic stress disorder were identified. Of the 23% who had seriously disabling disorders, only about 8% had received treatment in the preceding 12 months. Treatment was mostly provided by general medical practitioners; only a few were treated by alternative practitioners such as traditional healers.

Conclusions The observed low rates seem to reflect demographic and ascertainment factors. There was a large burden of unmet need for care among people with serious disorders.

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The emergence of fully structured diagnostic interviews that do not require highly trained clinicians for their administration has made large-scale and replicable epidemiological studies of mental disorders possible. Even with this development, such studies in developing countries are hampered by lack of resources and are particularly rare in Africa (Gureje & Alem, 2000; Ayonrinde *et al*, 2004). Large-scale surveys are expensive to mount and demand considerable expertise. Such expertise and the necessary funding are not always available in research centres in Africa (Alem & Kebede, 2003).

There is a wide variation in the rates reported for both lifetime and 12-month disorders across studies. For example, a 12-month rate of 30% was reported for the USA, 23% for Australia and 9.6% for western Europe, even when broadly identical ascertainment tools had been used (Kessler *et al*, 1994; Andrews *et al*, 2001; Alonso *et al*, 2004). Although surveys examining prevalence of disorders are important, information on met and unmet need for treatment is also required, given that having a diagnosable mental disorder is not synonymous with need (Spitzer, 1998; Regier *et al*, 2000) and that the rates of met need also vary widely (Bijl *et al*, 2003). Here we present the results of the first large-scale community study of mental disorders in sub-Saharan Africa in which face-to-face interviews were conducted to generate estimates of lifetime and 12-month DSM–IV disorders (American Psychiatric Association, 1994). We present data on prevalence, socio-demographic correlates and service use.

METHOD

Sample

The Nigerian Survey of Mental Health and Well-Being (NSMHW) is a community-based survey of the prevalence, impact and antecedents of mental disorders which was conducted between 2001 and 2003. It used a four-stage area probability sampling of households to select respondents aged 18 years and over. The survey was conducted mainly in the Yoruba-speaking areas of Nigeria, consisting of eight states in the south-western and north-central regions (Lagos, Ogun, Osun, Oyo, Ondo, Ekiti, Kogi and Kwara). These states account for about 22% of the Nigerian population (about 25 million persons). This report does not include the results of a much smaller component of the NSMHW conducted in the Hausa, Ibo and Efik languages.

In the first stage of the sampling, using an ordered list of all primary sampling units stratified on the basis of states and size, 40 primary sampling units were systematically selected with probability proportional to size. Each unit was a local government area, a geographic unit with a defined administrative and political structure. In the second stage, four enumeration areas were systematically selected from each primary sampling unit. Enumeration areas are geographic subunits of local government areas and consist of between 50–70 housing units. They are a creation of the National Population Commission and are used by the Commission in the conduct of national censuses.

All the selected enumeration areas were visited by research interviewers prior to the interview phase of the survey and enumeration and listing of all the household units contained therein was conducted. These lists were entered into a centralised computer data-file, thus creating a sample in which the probability of any individual household being selected to participate in the survey was equal for every household within an enumeration area. In the final stage of the selection, which was conducted during the interview phase of the survey, interviewers obtained a full listing of all residents in the household from an informant. After identifying household residents who were aged 18 years or over and were fluent in the language of the study (Yoruba), a probability procedure was used to select one respondent to be interviewed. The Kish table selection method was used to select one eligible person as the respondent. Only one such person was selected per household, except for a random 25% of households in which a secondary respondent, a spouse of the primary respondent who had been interviewed, was also selected for a study of assortative mating. When the primary respondent was either

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unavailable following repeated calls (up to five calls were made) or refused to participate, no replacement was made within the household. On the basis of this selection procedure, face-to-face interviews were conducted with 4984 respondents between February and November 2002. The response rate was 79.9%. Respondents were informed about the study and provided consent, mostly verbal but sometimes signed, before interviews were conducted. The survey was approved by the University of Ibadan and University College Hospital, Ibadan joint ethics review board.

Measures

Diagnostic assessment was made with the use of the World Health Organization's World Mental Health (WMH) Survey Initiative version of the Composite International Diagnostic interview (CIDI; Kessler & Ustun, 2004). The CIDI is a fully structured diagnostic interview that is lay-administered and can generate diagnoses according to both the ICD–10 (World Health Organization, 1992) and DSM–IV criteria. We have used earlier versions of the CIDI extensively in Yoruba (Gureje *et al*, 1992, 1995). The Yoruba version of the WMH–CIDI used in this survey was derived, as in earlier versions, using standard protocols of iterative back translation conducted by panels of bilingual experts. The WMH–CIDI primarily ascertains lifetime disorders. For respondents with lifetime occurrence of a disorder, follow-up questions allow a determination of whether they have also experienced such disorders in the prior 12 months. Specifically, we considered the occurrence of anxiety disorders (panic disorder, generalised anxiety disorder, agoraphobia without panic disorder, specific phobia, social phobia, post-traumatic stress disorder, obsessive–compulsive disorder), mood disorders (major depressive disorder, dysthymia, bipolar disorder) and substance use disorders (alcohol and drug abuse and dependence). The DSM–IV organic exclusion rules were applied to all diagnoses and so were hierarchy rules, except in the case of substance use disorders, where misuse is defined with or without dependence.

Severity

Ratings of severity associated with each disorder experienced in the prior 12 months were made. This was done by asking respondents to focus on the month in the past year when the symptoms of the disorder were most persistent and severe and to rate the disability associated with the disorder during that month using an expanded version of the Sheehan Disability Scales (SDS; Sheehan *et al*, 1996). Four areas of functioning (work performance, household maintenance, social life and intimate relationship) are assessed by the SDS on a 0–10 visual analogue scale which also incorporates the verbal descriptors 'none' (0), 'mild' (1–3), 'moderate' (4–6), 'severe' (7–9) and 'very severe' (10). The design of the SDS, incorporating as it does both visual and verbal dimensions for rating, is particularly useful in a study such as ours, comprising a large number of respondents with no formal education. Respondents with any 12-month disorders were categorised as having severe or moderate disorder if they had a moderate or higher rating on the SDS. All other cases of 12-month disorders were rated as mild.

Training and quality control

The interviews were conducted by 24 trained interviewers, all of whom had at least a high-school education. Many had been involved in field surveys and were experienced at conducting face-to-face interviews. Interviewers received a 2-week training consisting of an initial 6-day training by O.G., followed by a further 2 days of debriefing and review after each interviewer had conducted two pilot interviews in the field. Six supervisors, all of whom underwent the same level of training, monitored the day-to-day implementation of the survey.

Quality control was implemented at various levels. A supervisor was responsible for the work of four interviewers and checked every questionnaire returned by those interviewers for completeness and consistency. He or she made random field checks on at least 10% of each interviewer's prospective respondents (more at the beginning of the survey) to ensure the correct implementation of the protocol and full adherence to the interview format. Special emphasis was placed on the detection of systematic errors or bias in the administration of the interview. Each supervisor made regular returns to the project coordinator who, along with the principal investigator, also conducted random checks on respondents in the field. During the fieldwork, regular debriefing sessions were held when all interviewers and supervisors returned to the central office for review of experience and discussion of difficulties. Following data collection, an extensive data-cleaning process was conducted to identify and rectify inconsistencies in dating, missing values, etc.

Data analysis

In order to take account of the stratified, multistage sampling procedure and the associated clustering, weights were derived and applied to the rates presented in this report. The first weighting adjusted for the probability of selection within households and for non-response. Also, post-stratification adjustments to the target gender and age range were made to adjust for differences between the sample and the total Nigerian population (according to 2000 United Nations projections). The weight so derived, the 'part 1 weight', was normalised to reset the sum of weights back to the original sample size of 4984. A second weight, the 'part 2 weight', was also derived and applied to a probability subsample of the survey sample who completed the long form of the interview (part 2; n=1682). The part 2 weight is a product of the part 1 weight as well as the empirical probability of selection into the group with the long interview. This probability varied according to the presence or absence of selected diagnostic symptoms. Thus, all participants who endorsed a set of diagnostic symptoms in part 1 of the interview were selected into part 2 with certainty (i.e. a probability of 1.0). All others were randomly selected into part 2 with a constant probability of 25%. The weight was then normalised to reset the sum of weights back to the sample size of 1682.

The analysis took account of the complex sample design and weighting. Thus, we used the Taylor series linearisation method implemented with the SUDAAN statistical package to estimate standard errors for proportions (SUDAAN version 8.0.1). Demographic correlates were explored with logistic regression analysis (Hosmer & Lemeshow, 2000) and the estimates of standard errors of the odds ratio obtained were made using SUDAAN. All of the confidence intervals reported are adjusted for design effects.

In this study we examined the association between disorders and receipt of treatment on the one hand with socio-demographic variables of age, gender, education and per capita income on the

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other. Per capita income was calculated by dividing household income by the number of people in the household. Respondents' per capita income was categorised by relating each respondent's income to the median per capita income of the entire sample. Thus, an income was rated low if its ratio to the median was 0.5 or less, low-average if the ratio was 0.5–1.0, high-average if it was 1.0–2.0 and high if it was over 2.0. Residence was classified as rural (fewer than 12 000 households), semi-urban (12 000–20 000 households) or urban (more than 20 000 households). Service providers were grouped into 'general medical' (essentially general practitioners but also non-mental-health specialists), 'mental health' (including psychologists, social workers, psychiatric nurses), 'healthcare' (general nurses, counsellors and other trained health workers) and 'non-health' (mostly alternative or traditional health workers).

RESULTS

Sample characteristics

Table 1 presents the age and gender distributions of the sample. It was composed of about 52% women and there was a predominance of people aged less than 35 years (about 55%). These weighted figures are close to the Nigerian national profile as indicated by the United Nations 2000 projections (the last national census in Nigeria was held in 1991).

Prevalence of disorders

Table 2 shows that 12.1% of the sample had had at least one lifetime DSM–IV disorder and that 5.6% had experienced at least one of the disorders in the prior 12 months. Specific phobia was the most common disorder, occurring in 5.4% ever in lifetime and in 3.5% in the prior 12 months (Table 2). The rates for the other anxiety disorders were substantially lower. In this sample generalised anxiety disorder and post-traumatic stress disorder (PTSD) as identified by the WMH–CIDI, were virtually absent. Lifetime prevalence of major depressive disorder was 3.3% while that of alcohol abuse was 2.8%. Differences in the lifetime rates of the disorder groups were generally less remarkable than those in the 12-month rates. For example, the ratio of the lifetime rates of mood disorders to anxiety disorders was 1:1.4 whereas it was 1:3.2 for the 12-month rates. Most (94.4%) of those with 12-month disorders had only one disorder. Two 12-month disorders were identified in 0.3% of the sample, and three disorders in 0.1%.

Most of the disorders were mild (77.1%). However, this broad characterisation hides differences in the proportions of serious cases within disorders. For example, the few cases of obsessive–compulsive disorder identified were serious, whereas only a few of those with specific phobia had disabling conditions. Predictably, a much higher proportion of people with two disorders (53%) and three disorders (76%) were rated as having a serious disorder.

Treatment

Treatment for mental health problems in the previous 12 months was reported by about 1.2% of the sample. Table 3 shows that less than 10% of those with disorders, irrespective of whether the disorder was serious or mild, had received any form of treatment for mental disorders any time in the 12-month period. Most were receiving treatment from general practitioners and from non-mental-health specialists. Only about 0.6% of those with serious disorders had received treatment in a specialist setting; conversely, almost 2% had been in the care of alternative or traditional practitioners. Among those with no DSM–IV disorder (many of whom might nevertheless have had symptoms of psychological distress), 0.7% were in treatment. Of these, a substantial proportion (0.4%) were receiving treatment from alternative or traditional health practitioners.

Correlates of lifetime and 12-month disorders

There were only a few socio-demographic predictors of disorders. Women were less likely to have a lifetime disorder than men, but this was not the case for 12-month disorders (Table 4). When groups of disorders were examined (not in the table), women were significantly less likely to have either a lifetime or a 12-month diagnosis of a substance use disorder, but were not different from men in regard to the other disorder groups. In particular, neither the risk of lifetime disorder (OR=1.2, 95% CI 0.9–1.7) or risk of 12-month disorder (OR=0.9, 95% CI 0.3–2.6) was significantly higher for women than for men. Income was related to the probability of having a disorder, especially a lifetime disorder. Surprisingly, compared with participants in the highest income level those in the lower income groups were less likely to have a disorder. Participants living in semi-urban areas (but not those in rural areas) were significantly less likely than those in urban

Table 1 Demographic distribution of the sample compared with the population on post-stratification variables

	Part 1		Part 2		Census[1]
	Unweighted %	Weighted %	Unweighted %	Weighted %	%
Age, years					
18–24	16.7	27.0	14.9	27.0	27.0
25–29	14.9	15.2	14.6	15.2	15.2
30–34	13.0	13.1	13.6	13.1	13.1
35–39	10.3	10.4	11.4	10.4	10.4
40–44	8.6	8.0	8.9	8.0	8.0
45–49	5.8	6.0	5.8	6.0	6.0
50–54	7.1	5.8	7.0	5.8	5.8
55–59	4.1	4.7	4.2	4.8	4.8
60–64	6.3	3.7	7.1	3.7	3.7
65–69	3.6	2.7	4.0	2.7	2.7
70–74	4.3	1.6	4.1	1.6	1.8
75+	5.4	1.8	4.5	1.8	1.7
Gender					
Male	45.8	48.8	46.1	49.0	49.0
Female	54.2	51.2	53.9	51.0	51.0

1. United Nations 2000 projections from the 1991 Nigerian national census.

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Table 2 Prevalence of lifetime and 12-month DSM–IV disorders

Disorder[1]	Lifetime % (s.e.)	12-month % (s.e.)
Anxiety disorders		
Panic disorder	0.2 (0.1)	0.1 (0.0)
Generalised anxiety disorder	0.1 (0.0)	0.0 (0.0)
Specific phobia	5.4 (0.7)	3.5 (0.5)
Social phobia	0.3 (0.3)	0.3 (0.3)
Agoraphobia without panic	0.4 (0.3)	0.2 (0.1)
Post-traumatic stress disorder[2]	0.0 (0.0)	0.0 (0.0)
Obsessive–compulsive disorder	0.1 (0.1)	0.1 (0.1)
Any anxiety disorder[3]	5.7 (0.7)	4.1 (0.6)
Mood disorders		
Major depressive disorder	3.3 (0.3)	1.0 (0.1)
Minor depressive disorder	0.8 (0.2)	0.2 (0.1)
Dysthymia	0.2 (0.1)	0.1 (0.0)
Bipolar disorder (I, II)	0.0 (0.0)	0.0 (0.0)
Any mood disorder	4.1 (0.4)	1.3 (0.2)
Substance use disorders		
Alcohol abuse	2.8 (0.5)	0.5 (0.2)
Alcohol dependence	0.2 (0.1)	0.1 (0.0)
Drug abuse[2]	1.0 (0.3)	0.2 (0.1)
Drug dependence[3]	0.0 (0.0)	0.0 (0.0)
Any substance use disorder[2]	3.9 (0.5)	0.8 (0.2)
Any disorder		
Any	12.1 (1.0)	5.8 (0.7)

1. Diagnosed with the World Mental Health Survey Initiative version of the Composite International Diagnostic Interview.
2. Part 2 sample.
3. Part 2 sample. No adjustment is made for the fact that one or more disorders in the category were not assessed for all part 2 respondents.

areas to have lifetime and 12-month disorders.

DISCUSSION

In considering the findings reported here, several general caveats are important to note. It is possible that the rates reported here underestimate the occurrence of mental disorders in the community for a number of reasons. First, in a setting where mental illness is still highly stigmatised (Gureje *et al*, 2005), symptoms of such illness might be embarrassing and so more likely to be denied. Second, respondents might find health assessment by lay interviewers novel and feel less inclined to disclose their symptoms. Third, we have focused on categorical DSM–IV disorders; however, there is evidence from previous studies by us that people who do not meet the full criteria to receive a categorical diagnosis but who might have some psychological symptoms might nevertheless have associated disabilities that are similar to those with categorical diagnoses (Gureje, 2000). Finally, this report does not include data on non-affective psychoses, because the WMH–CIDI has only screening questions for psychosis, which do not permit diagnostic assignment. Even though people with non-affective psychoses might otherwise have been captured as meeting the criteria for one of the assessed disorders, some might still have been missed.

Table 3 Association of 12-month disorder severity with treatment type

Treatment	Severity			Any treatment % (s.e.)
	Serious % (s.e.)	Mild % (s.e.)	None % (s.e.)	
General medical	6.1 (3.6)	9.2 (3.0)	0.3 (0.1)	0.7 (0.2)
Mental health	0.6 (0.6)	0.0 (0.0)	0.0 (0.0)	0.0 (0.0)
Healthcare	6.7 (3.7)	9.2 (3.0)	0.3 (0.1)	0.8 (0.2)
Non-healthcare[1]	1.6 (1.8)	0.0 (0.0)	0.4 (0.3)	0.4 (0.2)
Any treatment	8.3 (4.7)	9.2 (3.0)	0.7 (0.3)	1.2 (0.2)
No treatment	91.7 (4.7)	90.8 (3.0)	99.3 (0.3)	98.8 (0.2)

1. Mainly traditional medicine.

Prevalence

Having considered some general limitations, the findings suggest that about 1 in 17 respondents had a DSM disorder in the previous 12 months whereas about 1 in 8 had had a lifetime disorder. As in other settings (Kessler *et al*, 1994; Andrews *et al*, 2001), anxiety disorders were the most frequent, occurring in 4.1% of the sample in the previous 12 months and 5.7% in the lifetime. Substance use disorders were surprisingly relatively common: the 12-month rate of 0.5% for alcohol abuse is close to that of 0.7% for alcohol abuse reported for six European countries (Alonso *et al*, 2004). The overall rates of 12.1% for lifetime disorder and 5.8% for 12-month disorder are lower than the respective rates of 25.0% and 9.6% reported for the six European countries in which identical ascertainment procedures were used (Alonso *et al*, 2004) and considerably lower than those reported in previous studies using earlier versions of the CIDI (Kessler *et al*, 1994; Bijl *et al*, 1998; Andrews *et al*, 2001).

Why are the rates low?

Although some of the variation in rates may in part be due to the use of different versions of the ascertainment tool, there may be other more fundamental differences at play. First, significant variations may exist in the true rates of mental disorders across cultures, just as is true for physical disorders. Significantly lower rates of disorder may reflect both a differential age at onset and the age structure of the population. If a substantial proportion of the sample is yet to live through the median age at onset

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Table 4 Socio-demographic predictors of lifetime and 12-month prevalences

	Any lifetime disorder		Any 12-month disorder	
	OR	(95% CI)	OR	(95% CI)
Gender				
Male	1.0		1.0	
Female	0.7*	(0.5–0.97)	0.9	(0.6–1.4)
Age, years				
18–34	1.0		1.0	
35–49	1.7*	(1.0–2.7)	1.2	(0.7–2.2)
50–64	2.2*	(1.5–3.2)	2.1*	(1.3–3.4)
65 and over	1.2	(0.7–1.9)	0.8	(0.5–1.4)
Family income				
Low	0.7*	(0.5–1.0)	0.6	(0.2–1.4)
Low-average	0.8	(0.5–1.1)	0.7	(0.4–1.2)
High-average	0.6*	(0.4–0.9)	0.4*	(0.2–0.7)
High	1.0		1.0	
Marital status				
Married/cohabiting	1.0		1.0	
Separated/widowed/divorced	1.1	(0.7–1.8)	1.2	(0.6–2.2)
Never married	0.7	(0.4–1.3)	0.9	(0.5–1.7)
Years of education				
No formal education	1.2	(0.7–2.0)	1.7	(0.8–3.6)
1–6	0.9	(0.5–1.8)	1.4	(0.5–3.6)
7–12	1.0	(0.6–1.6)	1.5	(0.9–2.5)
13 or more	1.0		1.0	
Residence				
Urban	1.0		1.0	
Semi-urban	0.8*	(0.6–1.0)	0.7*	(0.5–0.9)
Rural	0.9	(0.7–1.2)	0.8	(0.6–1.1)

*$P < 0.05$, two-sided test.

for a disorder, the rate of that disorder may be low. For example, the mean age of our part 2 sample was 35 years (s.e.=0.37). However, using the actuarial method to estimate age at onset (Halli & Rao, 1992), we found that the median age at onset for any mood disorder (i.e. the 50th percentile on the age-at-onset distribution) in our sample was 45 years. This is considerably higher than the age of 30 years reported by Kessler *et al* (2005) in their US sample. Second, the ascertainment tool may perform differently in different cultural settings. Cultures may differ in the likelihood that respondents in community surveys will endorse sufficient symptoms to reach diagnostic thresholds. In this regard, the near-absence of DSM–IV generalised anxiety disorder and PTSD is striking. We examined the possibility that people with the former disorder might have been systematically missed in our sample as a result of ascertainment procedure. The screening questions for generalised anxiety disorder in the WMH–CIDI ask whether respondents have ever had a period of persistent worry, nervousness or anxiety. Individuals who endorse any of these screens are referred to the specific section for generalised anxiety disorder, in which they are asked to indicate their sources of worry; if they indicate only one specific source of worry, rather than several or unknown, they are skipped out of the section and assumed to be unlikely to have the disorder. In our survey, 22% of the part 1 sample endorsed one of the screening questions for generalised anxiety disorder; however, when taken to the specific section, 88% of those screening positive indicated only one source of worry and were skipped out of the section. Most of these identified 'the economy' or 'personal finances' as their sole source of worry. An indication that they were nevertheless impaired (and might have been wrongly classified as non-cases) was provided by comparing them with those who had not screened positive using an item in the World Health Organization Disability Assessment Schedule (Rehm *et al*, 1999), which forms part of the WMH–CIDI. Those who had endorsed a generalised anxiety disorder screening question were significantly more likely to report that in the month before interview 'health-related problems caused [them] difficulties either getting along with people, maintaining a normal social life, or participating in social activities' than those who had not endorsed such a screening question, after controlling for age, the presence of any current DSM–IV disorder and any self-reported medical disorder (OR=3.5, 95% CI 1.2–10.2; $P < 0.03$). In this regard, the suggestion by Kessler (2000) that the DSM criterion ruling out generalised anxiety disorder if persistent worry could be regarded as justified might make socio-economically disadvantaged persons with chronic life situations unlikely to fulfil the criteria for this disorder seems plausible. Perhaps other factors, including ethnicity, are involved as well, given the lower rates of disorders often observed among Black people compared with White people in population surveys (Kessler *et al*, 1994).

Severity and service use

Most of the disorders recorded in our sample were mild. Indeed, just about 23% of the cases were of moderate or serious severity. This finding is consonant with those of others, which suggests that although mental disorders are common in the community, a large proportion of those with such disorders nevertheless manage to function without considerable functional limitations (Bijl *et al*, 1998; Narrow *et al*, 2002; WHO World Mental Health Survey Consortium, 2004). These findings support the contention that prevalence studies in the community require complementary assessment of severity in order to set the need for care in context (Regier *et al*, 2000).

Our findings with regard to service utilisation are striking for the extent of unmet need they show. If we regard the index for need of a service as the presence of not just a disorder but of its associated disablement, people with serious disorders would be classified as being particularly in need of service. However, even in this group,

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only about 1 in 11 had received any form of service. It could be said that for many in this group specialist service might be the best option for care, but less than 1% of them reported being in specialist treatment in the previous 12 months. This finding is hardly surprising, given that Nigeria has fewer than 100 psychiatrists for its population of about 114 million persons. Also, a publication by the World Health Organization (2001) shows that mental health services are hampered by grossly inadequate personnel and facilities.

As well as participants with mild disorders, some with no DSM–IV disorder were also in receipt of treatment. It is possible that many of the latter were experiencing symptoms but did not reach the diagnostic threshold for a DSM–IV disorder. Does this constitute a waste of resources, given the shortfall in service to the more severe cases? Perhaps not. In a previous study we have shown that people with subclinical symptoms may nevertheless be at elevated risk of poor health outcomes 1 year later (Gureje, 2000); that is, subclinical syndromes are often predictive of disability at 12-month follow-up. Indeed, the observation that people who did not receive a DSM–IV diagnosis might have been missed because of methodological factors rather than an absence of impairment suggests that categorical diagnoses ascertained in epidemiological surveys have their limitations. In the context of our setting, therefore, diversion of resources from mild or subclinical cases to the more severe cases is not the solution. Providing more service to everyone in need is likely to be a better approach (Stein & Gureje, 2004). That need may have to be determined by the presence of symptoms and associated impairment rather than by a categorical diagnosis. It is also clear that in a setting with few specialist, medical or nursing staff, service can only be realistically provided to the many in need by primary healthcare workers with basic but relevant training in the identification and treatment of common mental disorders.

Surprisingly, only a small proportion of respondents had received any treatment from traditional healers. This observation is likely to reflect the fact that the questions about service use were specifically related to the syndromes assessed in the interviews. It is not unlikely that even when traditional healers had been contacted, the presenting symptoms had been physical rather than those elicited in the interview.

Socio-demographic predictors of prevalence

Other than the clear association of male gender with substance use disorders and the observation that women were less likely than men to have a lifetime disorder, there was no striking gender difference in prevalence or disorder type. In particular, the common observation of an association of female gender with mood disorders, particularly with depression (Kessler, 2003), was not found. In our earlier study in primary care, we also failed to find an association between female gender and depression in this cultural setting (Gureje *et al*, 1995). However, given the small numbers of cases in these observations, there is a need for caution in drawing any conclusions. Still, this observation requires further exploration as it may throw light on cultural differences between men and women in the experience of putative depression-provoking environmental experiences (Kessler, 2003). The finding that people with lower income were less likely to have a disorder is unusual and may, at least in part, be related to a reduced willingness to report psychological symptoms. Our findings suggest a need for more studies examining the relationship between poverty and common mental disorders in low-income countries (Patel & Kleinman, 2003).

Future research

There is a need for a more detailed examination of the factors that influence wide variations in the rates of mental disorders across cultures. Factors due to the demographic and social attributes of study populations are particularly germane. Perhaps there is also an ethnic difference, since the rates of both lifetime and 12-month disorders are significantly lower among Black than White populations (Kessler *et al*, 1994, 2005). However, our study has shown that even though mental disorders commonly reported in other cultural settings may present in our culture, the rates of disorders ascertained by structured interviews may be influenced by various methodological factors. A much smaller but historically important study conducted by Leighton *et al* (1963) found no significant difference in the pattern of psychopathology between Yoruba speakers in Nigeria and residents of Stirling County in the USA. In contrast to our findings, that study found broadly similar rates in Nigeria and in the USA. However, the participants had received detailed, semi-structured assessments conducted by experienced clinicians rather than lay-administered questionnaires. In essence, the question about cultural variation in patterns is still an open one, even though we now know that documenting cultural similarities and differences is important to attempts to determine the global burden of mental disorders (Üstün *et al*, 2004). New enquiries are also suggested by the observations that gender and income did not bear expected relationships with mental disorders in our sample. What social or cultural factors are at play here?

This first large-scale study of mental disorders in sub-Saharan Africa in which a replicable procedure was used presents unique opportunities for exploring cross-national variations in the occurrence of mental disorders. The use of ascertainment tools with wide international application offers the possibility of cross-national comparisons. One such opportunity has recently been seized in our cross-national data on prevalence of broad diagnostic groupings in 16 countries (WHO World Mental Health Survey Consortium, 2004). It is, however, clear that caution should be exercised in interpreting the results of such comparisons. Rather, further exploration of the data from these different countries may help throw some light on the reasons why rates of disorders vary widely across countries. Such an exercise may also help in the refinement of the criteria for mental disorders as we prepare to revise current versions of psychiatric classificatory systems. Clinical re-interviews of respondents to structured interviews as well as focused qualitative studies of the personal meanings of symptoms of mental distress are also required. We intend to conduct further analyses specifically addressing these methodological issues.

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CLINICAL IMPLICATIONS

- Rates of DSM–IV disorders as assessed by the World Mental Health version of the Composite International Diagnostic Interview (WMH–CIDI) are much lower than estimates from other population surveys. Estimates seem to reflect both the demographic characteristics of the sample and socio-cultural influences on the performance of the ascertainment tool.
- Only a small proportion of those with 12-month WMH–CIDI DSM–IV disorders were in receipt of any mental healthcare, suggesting a need for both more investment of resources in the mental health services and its integration into an effective primary healthcare system.
- In this setting, structured interviews to derive categorical diagnoses should be complemented with assessment of symptoms and of disablement to provide estimates of service need.

LIMITATIONS

- Cross-cultural comparisons of rates are limited by the possibility that the ascertainment tool performs differentially across cultures.
- Information on the clinical validity of the WMH–CIDI in the cultural setting is not available.
- The cultural and social meanings of the assessed disorders are inadequately understood.

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