

Mental disorders among the Borana semi-nomadic community in Southern Ethiopia

TEFERRA BEYERO^{1,2}, ATALAY ALEM¹, DEREKE KEBEDE², TESHOME SHIBIRE¹, MENELIK DESTA³, NEGUSSIE DEYESSA²

¹Department of Psychiatry, Addis Ababa University, P.O. Box 19241, Addis Ababa, Ethiopia

²Department of Community Health, Addis Ababa University, Addis Ababa, Ethiopia

³Amanuel Specialized Psychiatric Hospital, P.O. Box 1971, Addis Ababa, Ethiopia

This study aimed to estimate the lifetime prevalence and socio-demographic correlates of psychiatric disorders among the Borana semi-nomadic community of the Oromia region of Ethiopia. 1854 people of both sexes, aged 15 years and above, were interviewed during the survey. The households were selected by using a cluster sampling method proportionate to population size. The interviews were conducted by trained high school graduates using the Oromiffa version of the Composite International Diagnostic Interview (CIDI). The lifetime prevalence of ICD-10 mental disorders, including substance abuse, was 21.6%. Affective disorders were found in 1.7% of the study population, whereas neurotic and somatoform disorders constituted 14%. No cases of schizophrenia were detected. The prevalence of substance use was 10.1%. Studies using other methods, including interview by clinicians, might shed more light on the nature of mental illness in this unique community.

Key words: Borana, semi-nomadic community, mental disorders, prevalence

Mental illness is now being recognized as a major public health problem throughout the world. Prevalence studies highlight the gravity of the problem and thereby challenge policy makers to take appropriate action.

There are few prevalence studies done on isolated population groups. One is the Amish study, which reported a preponderance of affective disorders among cases of mental illness (1). Other similar studies were done on Formosan aborigines in Taiwan (2) and among the Hutterites, a unique religious group in North America (3,4). Both studies reported a low prevalence of schizophrenia and bipolar disorder. There are no published studies of mental disorders in a nomadic community in Africa.

The objective of this study was to estimate the prevalence of psychiatric disorders and their socio-demographic correlates among the Borana semi-nomadic community, in the Oromia region of southern Ethiopia.

The Borana Oromo is a distinct group among the Oromo peoples of Ethiopia. The Borana, which are believed to be the ancestors of all of the Oromo ethnic groups, are among the few nomadic groups existing today. They live in seven districts of the zone extending over a Savannah grassland area of more than 500 km diameter in the southern part of the country bordering Kenya. The Borana move from place to place in search of grazing land and water for their cattle, especially during the severe periodic drought seasons, which occur as frequently as every 2 to 3 years. They mostly live on milk and meat.

It is important to study unique and isolated communities like the semi-nomadic community in Borana to see whether the pattern of mental illness there has any peculiarity, and what aspects, if any, can be attributed to the unique environment and living conditions.

METHODS

The study, which is a cross-sectional survey, was con-

ducted in three areas of the Borana zone (Didara, Didi Yabello, and Megado) between mid-June and mid-August 2000 and in August 2001.

The study population was selected from the three areas by a cluster sampling method proportionate to size. Information regarding the population in the area was obtained from the respective local registries. The list of the villages and their populations was used as a sampling frame. Cumulative population and sampling intervals (cumulative total population/number of clusters) were calculated. After a random identification of an initial village, 30 villages were systematically selected. A systematic sample of households from each village was taken after identifying an initial starting household by a random number method. All members of the selected household aged 15 and above were included in the study. The same procedure was repeated for all three areas in which the survey was conducted.

The Borana dialect Oromiffa version of the Composite International Diagnostic Interview (CIDI, 5) was used in the survey. The section on eating disorders was left out of the interview, because the condition was not regarded as a problem in the region. Questions were read to the study subjects. If a question was not clear, the interviewers were instructed to read the question again but not to attempt to modify it or give any clarification. Each answer was coded and the interviewers circled the appropriate code (a number) corresponding to the response of the subject. The questionnaire was pre-tested in a similar community outside the sampled population before the survey was launched.

Twenty-three high school graduates were recruited as interviewers from the towns near the study sites. The recruits were given two weeks of training in CIDI interview techniques and instructions on completing the questionnaire.

Officials in various levels of administration in the area

were contacted before the launching of the study to inform them of the purpose of the study. Guides were provided to the survey team by the officials to direct the interviewers to the various villages. A field supervisor, who was employed by the study project from the area, gathered village elders before every visit to a village, to introduce the interviewers to them and to inform them of the purpose of the study.

Approaching a house that was selected for the study, the interviewers first introduced themselves and then identified household members aged 15 and above. They then asked each interviewee for his/her consent to participate in the study. All interviews were conducted in private. Male interviewers interviewed male respondents, and female interviewers interviewed female respondents because of cultural sensitivities. If the individuals in the selected households were not available for the interview, a maximum of three visits to that particular household were made by the data collectors. All the questionnaires were edited for proper completion on a daily basis by a research assistant and by the field supervisor. Interviewers were sent back to households to have incomplete questionnaires completed.

The CIDI Data Entry Program version 3.0 was used for data entry. The ICD-10 diagnoses were generated by the CIDI computer algorithms, which were then used for analysis. The EPI-INFO version 6 was used for descriptive analysis. The Statistical Package for the Social Sciences (SPSS) version 10.0 was used for bivariate and multivariate analysis.

The study was approved by the ethical review committees of the Amanuel Psychiatric Hospital and the Ethiopian Science and Technology Commission.

RESULTS

The total study population consisted of 1,854 subjects. 1,067 (57.6%) were females. Fifty-seven percent were under the age of 40, 66.8% were married, 87.7% were working at the time of the survey, and 92.2% had no prior formal education.

The lifetime prevalence of all psychiatric disorders, including substance abuse, was 21.6%. That of mental disorders excluding substance abuse was 14.6%. Subjects with only one diagnosis were 10.8%, while the rest of the cases had two or more diagnoses. Neurotic and somatoform disorders were the most frequent disorders, with a lifetime prevalence of 14%. The prevalence of affective disorders was 1.7%. Alcohol dependence was found in 1.6% of the study population and tobacco dependence in 3.6%. No cases of schizophrenia were detected in this study (Table 1).

The prevalence of neurotic and somatoform disorders was strongly associated with female sex. The odds of the disorder among females was almost twice that in males (odds ratio, OR = 1.84; 95% confidence interval, CI =

1.31-2.60, $p = 0.02$). There was also a higher prevalence of these disorders among the age groups 40-59 and 60 years and above as compared to the age group of 15-24 (OR = 1.77, 95% CI = 1.12-2.80, and OR = 1.82, 95% CI = 1.11-3.00, respectively; $p = 0.02$ in both cases). Marital status, current working status, and the status of formal education were not significantly associated with neurotic and somatoform disorders.

The odds of females having affective disorders was more than twice that of males (OR = 2.67, 95% CI = 1.0-7.34, $p = 0.05$). The prevalence of these disorders increased with increasing age in such a way that the odds among those who were 60 years old and above was 10 times that of the age group of 15-24 (OR = 9.96, 95% CI = 1.67 - 59.5, $p = 0.01$). Marital status, current working status, and formal education were not significantly associated with affective disorders.

Tobacco use was found to be more frequent in both sexes among psychiatric cases as compared to non-cases (21.4 % vs. 6.5 %, $p < 0.0001$). Alcohol dependence was higher among males in cases compared to non-cases (4.7 % vs. 3.6%) but the difference was not significant. There was a strong association between tobacco use and phobia in males ($p = 0.006$) and between tobacco use and affective disorders in females ($p < 0.0001$). There was only one female detected with alcohol dependence in this study.

DISCUSSION

The lifetime prevalence of mental disorders, excluding substance abuse, found in our study is similar to that reported in two studies from Addis Ababa (respectively, 13.1% and 14.3%) (6,7). It is, however, lower than the 26.7% lifetime psychiatric morbidity rate reported by Awas et al from Butajira in southern Ethiopia (8). Other studies from elsewhere in Africa (9,10) and the rest of the world (11-13) also reported a higher lifetime prevalence of mental disorders. In our study, women had a higher prevalence of mental disorders when substance use was excluded. However, there was no difference between the sexes in the overall prevalence of mental disorders when substance use was included.

The lifetime prevalence of affective disorders in this study, which was 1.7%, is lower than that reported from elsewhere in Ethiopia. A study in Addis Ababa (14) detected a lifetime prevalence of 5%, and another one in Butajira (a rural setting in Ethiopia) (8) reported a lifetime prevalence of 6.2%. The prevalence found in our study is also lower than that reported from other countries such as the Netherlands (12) and Canada (15). The low prevalence in our study may accurately reflect the situation in this nomadic community. However, queries have also been raised about some CIDI questions that connect the diagnosis of a major depressive disorder with visiting a health professional. As individuals in this community rarely visit health professionals for any sort of illness, their

Table 1 Lifetime prevalence of mental disorders among the Borana, southern Ethiopia

Diagnosis	Number (%)		
	Total	Male	Female
Number of diagnoses			
None	1,578 (85.1)	702 (89.2)	876 (82.1)
One	200 (10.8)	75 (9.5)	125 (11.7)
Two or more	40 (2.2)	4 (0.5)	36 (3.4)
Three or more	36 (1.9)	6 (0.8)	30 (2.8)
Any diagnosis (excluding substance use)	276 (14.9)	85 (10.8)	191 (17.9)
Any diagnosis (including substance use)	401 (21.6)	170 (21.6)	401 (21.6)
Substance use (F10-F19)	188 (10.1)	108 (13.7)	80 (7.5)
Alcohol use (F10.1-F10.2)	30 (1.6)	29 (3.7)	1 (0.1)
Alcohol dependence (F10.2)	30 (1.6)	29 (3.7)	1 (0.1)
Tobacco use (F17.1-F17.2)	161 (8.7)	82 (10.4)	79 (7.4)
Tobacco dependence (F17.2)	67 (3.6)	30 (3.8)	37 (3.5)
Stimulant use (F15.1)	5 (0.3)	5 (0.6)	-
Stimulant dependence (F15.2)	4 (0.2)	4 (0.5)	-
Psychoses (F20-F29)	-	-	-
Schizophrenia (F20)	-	-	-
Delusional disorders (F22)	-	-	-
Psychosis not otherwise specified (F23)	-	-	-
Schizoaffective disorders (F25)	-	-	-
Affective disorders (F30-F34)	32 (1.7)	7 (0.9)	25 (2.3)
Bipolar disorder (F30-F31)	2 (0.1)	1 (0.1)	1 (0.1)
Major depression (F32-F33)	9 (0.5)	1 (0.1)	8 (0.7)
Dysthymia (F34)	22 (1.2)	6 (0.8)	16 (1.5)
Neurotic and somatoform disorders (F40-F45)	260 (14.0)	80 (89.8)	887 (83.1)
Phobias (F40)	40 (2.2)	8 (1.0)	32 (3.0)
Generalized anxiety disorder/Panic disorder (F41)	13 (0.7)	3 (0.4)	10 (0.9)
Obsessive-compulsive disorder (F42)	6 (0.3)	1 (0.1)	5 (0.5)
Post-traumatic stress disorder (F43)	-	-	-
Dissociative disorders (F44)	49 (2.6)	9 (1.1)	40 (3.7)
Somatisation disorder (F45)	180 (9.8)	63 (8.1)	117 (11.1)
Persistent pain disorder (F45.4)	180 (9.7)	63 (8.1)	117 (11.1)

responses to such questions might have lowered the prevalence of affective disorders. Further studies are needed to confirm this.

The strong association of female sex with affective disorders is consistent with other studies from Ethiopia (8) and elsewhere (12,13,15). Our finding of an increase in the prevalence of affective disorders with increasing age is also consistent with reports from other studies in Ethiopia (8,14). The prevalence of affective disorders was higher in the middle aged and the elderly when compared to younger age groups in our study, in contrast to reports from the developed world, where younger age groups are often reported as more susceptible to these disorders (12,15). This may reflect the difficult environment in which elders live in this nomadic population, in contrast to the better care given to the elderly in developed nations.

Marital status was not found to be associated with affective disorders in our study. This is in line with a study done in Addis Ababa (14) but contrasts with other studies that have reported a higher prevalence of mood disorders among divorced, separated and widowed persons (15,16). This could be a reflection of the smaller number of the

separated, divorced, or widowed in our study population, thereby affecting statistical significance. Cultural factors, which often discourage divorce or separation, might also have played a role, in that couples stay together in spite of the fact that one of them becomes mentally ill. There was also no significant association between current working status and affective disorders in our study. This differs from studies done in Ethiopia (14) and elsewhere (17) and could be because the demarcation between unemployed and employed is not sharply drawn in this semi-nomadic community. The smaller number of those who identified themselves as not working might have also affected statistical significance in the analysis.

We have reported an overall prevalence of 14% for neurotic and somatoform disorders. This is lower than the 22% reported from rural Ethiopia (8) and the 25.1% reported from Baltimore in the Epidemiologic Catchment Area (ECA) study (11). The disorders were strongly associated with female sex and increasing age. The association with female sex is in line with studies from elsewhere in Ethiopia (8,18) and the developed world (15).

The association of neurotic and somatoform disorders with age in our study agrees with earlier findings in rural

Ethiopia (8), but is not consistent with reports from an urban setting in Ethiopia (18) or the developed world (12,19). This may be due to the less optimal care the elderly receive in terms of their physical care in the underprivileged communities of rural Ethiopia.

The prevalence of substance use was 10.1% among our study population. The substances considered were alcohol, tobacco, and a local stimulant, khat. The prevalence of 5.5% of substance dependence in general in our study is in agreement with a study in rural Ethiopia, which reported a 5.1% prevalence (8), although much higher findings have been reported from Europe and North America (11,12,15). We reported a prevalence of alcohol dependence of 1.6%. This is in broad agreement with studies from elsewhere in Ethiopia, that used the CIDI and reported prevalences of 1.1% and 1.0% (8,20). However, these figures are much lower than those reported from the developed world (11,12,15). This may be explained by the stronger social and family relationships that exist in less developed societies such as the Borana study population, which may not permit excesses in alcohol use. The male predominance in alcohol dependence is to be expected, as it is in conformity with almost all available reports. Tobacco use and alcohol dependence generally declined after reaching a peak in the 35-44 age group. One notable exception, however, is female tobacco use, which continues to increase after the mid 50s.

We did not detect a single case of schizophrenia among the study population. This is in sharp contrast to two studies from other areas in Ethiopia, that reported a prevalence of schizophrenia of 4.7 to 9 per thousand (6,21). However, a survey among an isolated island community in Ethiopia identified 31 cases of bipolar disorder and only a single case of schizophrenia in the adult population ($n = 1691$) (22). A low prevalence of schizophrenia has also been reported from some population groups elsewhere in the world. For example, among a collective population of Formosan aborigines, Rin and Lin found the prevalence of schizophrenia to be significantly lower than among the immigrant Chinese population (0.9 per 1000 and 2.1 per 1000, respectively). Among one of the four tribes of the Formosan aborigines they studied, the Saisiat ($n = 1302$), they found no case of schizophrenia (2). Re-diagnosing Eaton and Weil's study of the Hutterites by using DSM-III criteria, Torrey (3) confirmed the low prevalence of schizophrenia and bipolar disorder among this unique religious group in North America. Re-diagnosing the same study using DSM-IV criteria, Nimgaonkar et al (4) later reported a similarly lower prevalence of schizophrenia and bipolar disorder. Lower prevalences of schizophrenia have also been reported among the Amish in the United States (23) and in New Zealand (24) and Hong Kong (25). Some studies in Africa have also reported a lower prevalence of schizophrenia. For example, Sikanartey and Eaton (26) reported an overall prevalence of 1.09 per 1000 among a population of 15 years old and above in Ghana. A point

prevalence study in Nigeria (27) also reported a lower prevalence of psychosis (0.36 per 1000).

The CIDI was shown to be less effective in detecting cases of schizophrenia and psychosis in general when compared to other methods (28), and Jablensky (29) has described the validity of the CIDI in identifying cases of psychosis as problematic and its capacity for valid detection of psychotic disorders in community respondents as limited. Another possible explanation is probably a high case fatality rate for schizophrenia in the area, as a mobile population living in harsh environmental conditions may not be a good milieu for sufferers of chronic conditions. More studies in similar communities are, however, needed to confirm our finding.

In conclusion, the prevalence of mental disorders in this nomadic community looks somewhat different from other communities in Ethiopia and elsewhere around the world. The CIDI's validity in detecting cases of psychosis notwithstanding, our findings suggest a possible lower prevalence of psychosis and/or schizophrenia in the study population. That is consistent with Torrey's assertion (23) that "the impression remains, however, that there are some areas in the world where schizophrenia is uncommon. These areas are tropical... and there is the suggestion of a possible north-south gradient in the disease's distribution...".

We recommend the use of other methods, including interviews by clinicians and the use of key informants, to find more about the prevalence and nature of mental illness in this unique community. The use of the Schedules for Clinical Assessment in Neuropsychiatry (SCAN) following administration of the CIDI might shed more light in finding out whether the lower prevalence of major mental disorders found in this community reflects the true situation in the community. More studies are also needed in similar communities within Ethiopia to confirm our findings.

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