

# Outpatient Mental Health Services in Mozambique: Use and Treatments

Bradley H. Wagenaar, M.P.H., Ph.D., Vasco Cumbe, M.D., M.P.H., Manuela Raunig-Berhó, B.A., Deepa Rao, M.A., Ph.D., Brandon A. Kohrt, M.D., Ph.D., Andy Stergachis, Ph.D., Manuel Napúa, M.D., Kenneth Sherr, M.P.H., Ph.D.

To describe current outpatient mental health service use and treatments in Mozambique, the authors reviewed registry entries for 2,071 outpatient psychiatric visits at the Beira Central Hospital in Sofala Province from January 2012 to September 2014. Service use was most common for schizophrenia, followed by epilepsy, delirium, and organic behavioral disorders. Only 3% of consultations for schizophrenia were first-visit patients. Treatment seeking among

women was more likely for mood and neurotic disorders and less likely for substance use disorders and epilepsy. First-generation antipsychotics, most often paired with promethazine, dominated treatment regimens. Evidence-based reforms are needed to improve identification of mood disorders and broaden care beyond severe mental disorders.

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Across Mozambique, prevention, care, and treatment of mental disorders have been historically neglected compared with other health conditions. As of 2011, the Ministry of Health in Mozambique allocated only .16% of the total health budget to mental health services. This neglect of service provision occurs at a time when mental, neurological, and substance use disorders are recognized as the primary drivers of disability worldwide. A 2011 report that implemented the World Health Organization's Assessment Instruments for Mental Health Systems (WHO-AIMS) indicated that the most common outpatient psychiatric consultations in Mozambique were for epilepsy (53%), child mental disorders (15%), and schizophrenia (14%) and that 40% of mental health consultations were for women (1).

There are fewer than 15 psychiatrists in public-sector service in Mozambique, and the vast majority of mental health care is provided by psychiatric technicians who undergo a two-year training program after acquiring at least a tenth-grade education. This program is a major success of the Ministry of Health. Even with very limited financial resources for mental health services, the number of psychiatric technicians working nationally increased from 66 in 2010 to 241 as of December 2014. These technicians are placed mainly at district-level referral hospitals, and the government has recently achieved the goal of placing one technician in each of the 135 districts. Psychiatric technicians are able to diagnose all categories of mental health conditions and treat them by using brief psychotherapy and all therapeutic categories of psychotropic medications. Psychotropic medications are generally available at facilities with trained mental health

staff, although stock-outs are common, and certain essential medications are not available (2).

The objective of the assessment reported here was to address a gap in the peer-reviewed literature documenting current outpatient mental health utilization patterns, along with treatment patterns. This study was conducted at the Beira Central Hospital, one of three central hospitals in Mozambique. The hospital employs numerous specialists and serves all of central Mozambique, providing 26% of all outpatient mental health consultations in Sofala Province. Because it generally has better availability of mental health medicines (2) and specialists, it likely serves patients with more severe illness.

## Data and Analysis Procedures

We reviewed 2,071 outpatient psychiatric registry entries from January 2012 to September 2014. Registries are hand written with one line per patient, including the consultation date, age, sex, visit number (first or two or more), diagnosis, treatments provided, and corresponding *ICD-10* code. Two trained abstractors manually entered data into Excel 2013. Inconsistencies between abstractors and instances of illegible handwriting were resolved by revisiting the registry and cross-checking with responsible staff.

Outpatient *ICD-10* diagnosis groupings and individual diagnoses were analyzed by continuous age and percentage of females. Individual diagnoses were tabulated, and the four most common primary diagnoses within each *ICD-10* diagnostic grouping are reported. All treatment regimens were

tabulated for each of the four most common individual diagnoses, and the three most common regimens for each diagnosis are presented. Two-sample *t* tests were used to compare continuous age distributions. Chi square tests were used to test for gender differences. Fisher's exact tests were used if any cell was less than five. Individuals with missing data on a given factor were excluded for analyses of that variable. Stata 13 was used for statistical analyses. All tests were two-tailed with an alpha value of .05.

## Findings and Practical Implications

*Service Use.* The study provided gender and age profiles of common diagnoses by *ICD-10* code, as well as typical treatment regimens, for more than 2,000 outpatient consultations over a 20-month period. We found that use of outpatient mental health care at the Beira Central Hospital was primarily by individuals under age 36 (61% age  $\leq$ 35) who were seeking care for severe mental illnesses, namely schizophrenia and schizotypal or delusional disorders, which accounted for over 40% of all outpatient consultations. Schizophrenia was the single most common diagnosis, accounting for almost 30% of all outpatient consultations. [Tables presenting demographic and clinical data are included in an online supplement to this column.] Overall, less than 14% of all outpatient consultations were for new patients. Among visits by patients with common diagnoses, schizophrenia accounted for the lowest proportion of first-visit patients—less than 4% of consultations were for new patients. These findings are concerning because they indicate that few new patients are entering the outpatient care system. Cross-national studies from other settings indicate that schizophrenia does not have differential incidence or prevalence by gender. Therefore, it is encouraging that no significant gender differences were found in service use for schizophrenia in our sample. In addition, overall mental health service use was almost perfectly balanced between genders, an indicator that services may be skewed toward severe illness and away from common mood disorders, because across diverse global primary care settings depression is twice as prevalent among women.

Epilepsy was the second most common outpatient psychiatric diagnosis. Patients with epilepsy were significantly younger than patients in the average consult and more likely to be male (60% of cases). These data suggest that men may have a higher burden of epileptic disorders in central Mozambique; this is not surprising, because studies indicate that men may have a higher incidence of epilepsy in other sub-Saharan African countries (3). Gender differences may be especially important for neurotic and mood disorders. These conditions were rarely diagnosed in our outpatient sample (only 4.7% and 1.9%, respectively), and patients with these diagnoses were more likely to be female. For example, 87% of patients with a depressive episode, 73% of patients with adjustment disorder, and all patients given a diagnosis of bipolar disorder were female. These findings indicate that

females were four times more likely than males to receive a diagnosis of depressive illness. This is surprising because in most settings, the prevalence of major depressive disorder is estimated to be twice as high among women than men (4). The elevated mean age of those seen for depressive illness (40–45 years) may indicate heterogeneity in diagnoses, care seeking, or prevalence of depression by age—important questions for future studies.

With only five total cases of bipolar disorder diagnosed among 2,071 consultations and the relatively stable population point prevalence of .7%–1% globally (5), it seems likely that bipolar disorder may be routinely misdiagnosed. This could represent a missed opportunity for suicide prevention, given that individuals with bipolar disorder are estimated to be 60 times more likely than the general population to die from suicide (6).

As expected, given the cultural climate around psychoactive substance use, males were more likely to be given diagnoses of substance use disorders. A previous population-level study of alcohol consumption in Mozambique found only a twofold higher prevalence of current alcohol drinking among men compared with women (7). Our study found a nearly ninefold higher prevalence among males, which could result from either underuse of treatment or underdiagnosis among females with substance-related issues, potentially because of strong stigma associated with females' use of psychoactive substances.

*Treatment Patterns and Quality.* The first-generation antipsychotics trifluoperazine, fluphenazine, decanoate of fluphenazine, haloperidol, and chlorpromazine—all of which are on the national essential medication list (2)—were the most common treatment regimens for most types of organic disorders, as well as for psychoactive substance use, schizophrenia and delusional disorders, and intellectual disability. Most often, these first-generation antipsychotics were prescribed alongside promethazine—an unusual combination because promethazine is not a first-line treatment for prevention of extrapyramidal side effects in high-income countries nor is it recommended in the WHO Mental Health Gap Action Program (WHO mhGAP).

Evidence-based guidelines from WHO mhGAP state that anticholinergics should not be routinely prescribed to prevent the development of extrapyramidal side effects, should be considered only for short-term use among patients with significant existing side effects, and should not be prescribed for long-term use by pregnant women. Given that a large proportion of patients treated in this setting are women of reproductive age and that promethazine is not first-line treatment for the prevention or treatment of extrapyramidal symptoms, the routine pairing of promethazine or other anticholinergic agents with first-generation antipsychotics should be reviewed. Moreover, antipsychotics and anticholinergics are contraindicated in the treatment of delirium and dementia, with an increased mortality risk, although this was the treatment of choice in our sample. As evidence-based

guidelines recommend biperiden for first-line treatment of extrapyramidal side effects, its availability could be prioritized and going forward it could be used in place of promethazine.

The most cost-effective treatment for schizophrenia in lower-middle-income countries (LMICs) includes antipsychotics plus psychosocial interventions, which increase improvement by 15% to 26% compared with no treatment (8). Similarly, evidence-based recommendations suggest that diazepam is preferable to manage acute alcohol withdrawal and that antipsychotics are not indicated as stand-alone treatment. In the outpatient setting in Mozambique, an increased focus on brief (five to 30 minutes) psychosocial interventions for substance use and schizophrenia with potential follow-up seems warranted and is supported by strong evidence from other settings.

There are many reasons why a treatment regimen not initially indicated in evidence-based guidelines would be prescribed in this setting: clinicians treat patients with complex symptoms that may not always correspond to a single diagnosis on the basis of Western-developed systems; many best-evidence treatments are not consistently (or ever) available in Mozambique or in other similar LMICs; and the reality of available financing, time, and information access to adopt recent evidence-based guidelines is limited in Mozambique and similar settings. For example, use of first-generation antipsychotics by individuals with a primary diagnosis of a substance-related disorder may make sense if these patients have comorbid psychotic symptoms. In regard to the availability of best-evidence treatments, methadone, buprenorphine, acamprosate, naloxone, and disulfiram are all indicated to manage alcohol withdrawal or to reduce relapse, but none are available in Mozambique. Finally, many psychiatric technicians have been practicing since 1996 with few opportunities for formal retraining as new formularies are adopted and evidence-based guidelines change. Going forward, formal evaluations of the psychiatric technician program, including training, retraining, supervision structures, and effectiveness of treatments provided, could drive quality improvements.

**Limitations.** This study had limitations. First, our data lacked a gold-standard comparison diagnosis, impeding the determination of whether, for example, men are more likely than women to be given an epilepsy diagnosis or men are actually presenting more often with epilepsy symptoms. Second, the reliability and validity of using the complex *ICD-10* classification system in this setting are unknown and could be evaluated. Third, these data are from one hospital in Mozambique and thus are likely not representative of diagnostic and treatment patterns in rural areas or smaller clinics.

## Conclusions

Psychiatric services at the Beira Central Hospital are currently dominated by treatment for severe mental illness, most

commonly for schizophrenia, epilepsy, and delirium or other organic disorders. Mood disorders, although hypothesized to have high population prevalence, are currently not well addressed. To address the low rate of mood disorder identification, implementation of rapid screening tools, such as the Patient Health Questionnaire-2, could be considered alongside increased efforts to integrate mental health care into primary care. For most diagnoses, medication use currently focuses on first-generation antipsychotics routinely paired with promethazine or another anticholinergic agent. Some regimens may not be following up-to-date guidelines, indicating that a larger review of provider knowledge and national training materials and guidelines could help ensure that all patients are receiving the best possible care. Giving nurses or medical assistants more responsibility for follow-up medication administration and regimen guidance could decrease the burden on the limited numbers of mental health specialists.

## AUTHOR AND ARTICLE INFORMATION

Dr. Wagenaar, Ms. Raunig-Berhó, Dr. Rao, Dr. Stergachis, and Dr. Sherr are with the Department of Global Health, University of Washington, Seattle (e-mail: wagenaarb@gmail.com). Dr. Wagenaar and Dr. Sherr are also with Health Alliance International, Seattle. Dr. Rao is also with the Department of Psychiatry and Behavioral Sciences, and Dr. Stergachis is also with the School of Pharmacy, both at the University of Washington, Seattle. Dr. Cumbe is with the Department of Mental Health and Beira Central Hospital, Beira, Mozambique. Dr. Kohrt is with the Department of Psychiatry and Behavioral Sciences, Duke University, Durham, North Carolina. Dr. Napúa is with the Beira Operations Research Center, Beira, Mozambique. José Miguel Caldas de Almeida, M.D., and Matt Muijen, M.D., Ph.D., are editors of this column.

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Supplementary table 1. Demographic characteristics of 2,071 patients seeking care from outpatient psychiatric services at Beira Central Hospital from January 2012 – September 2014.

<b>Characteristic</b>	<b>N (%) unless noted</b>
<b>Age [mean (SD)]</b>	<b>34.7 (13.1)</b>
<18	52 (2.5)
18-25	437 (21.1)
26-35	773 (37.3)
36-45	370 (17.9)
46-55	205 (9.9)
56+	163 (7.9)
Missing	71 (3.4)
<b>Gender</b>	
Female	949 (45.8)
Male	974 (47.0)
Missing	148 (7.2)
<b>Visit number</b>	
1	276 (13.3)
2+	1,575 (76.1)
Missing	220 (10.6)

Supplementary table 2. ICD-10 classification, age, gender, and first-visit percentage of 2,071 patients seeking care from outpatient psychiatric services at Beira Central Hospital from January 2012 – September 2014.

Characteristic	N (%) unless noted	Mean age (SD)	Age p-value	Percent female	Gender p-value	% first visits	First-visit p-value
<b>ICD-10 Diagnosis Code</b>							
F00-09: Organic, including symptomatic, mental disorders	192 (9.3)	41.9 (18.7)	<0.001	59.3	0.005	22.3	0.004
F10-19: Mental and behavioral disorders due to psychoactive substance use	92 (4.4)	33.3 (11.1)	0.32	10.1	<0.001	26.5	0.002
F20-29: Schizophrenia, schizotypal, and delusional disorders	894 (43.2)	34.4 (11.2)	0.50	51.7	0.07	6.1	<0.001
F30-39: Mood (affective) disorders	40 (1.9)	38.6 (13.1)	0.05	84.2	<0.001	20.0	0.39
F40-48: Neurotic, stress-related, and somatoform disorders	97 (4.7)	35.6 (10.9)	0.44	69.3	<0.001	25.6	0.005
F50-59: Behavioral syndromes associated with physiological or physical factors	23 (1.1)	35.4 (12.4)	0.78	23.8	0.019	50.0	<0.001
F60-69: Disorders of adult personality and behavior	7 (0.34)	30.8 (6.4)	0.49	50.0	1.0	0.0	1.0
F70-79: Intellectual disability	40 (1.9)	27.4 (9.9)	<0.001	57.5	0.23	21.6	0.25
F80-89: Disorders of psychological development	0 (0)	n/a	n/a	n/a	n/a	n/a	n/a
F99-98: Behavioral and emotional disorders with youth onset	2 (0.10)	35 (46.7)	0.97	50.0	1.0	0.0	1.0
G40-41: Epilepsy and recurrent seizures	262 (12.7)	30.6 (12.4)	<0.001	40.5	0.004	11.8	0.15
Missing	422 (20.4)	34.8 (13.6)	0.73	46.4	0.20	24.2	<0.001

Supplementary table 3. Four most common narrative primary diagnoses by ICD-10 code along with age, gender, first-visit percentage, and common treatments provided for 2,071 patients seeking care from outpatient psychiatric services at Beira Central Hospital from January 2012 – September 2014.

ICD-10 code (total n of 1,654 with complete ICD-10)	Four† most common primary narrative diagnoses	N (%) of total in each ICD-10 category	Mean age (SD)	Percent female	% first visit	Most common treatment regimen (n, %) <sup>§</sup>
F00-09: Organic, including symptomatic, mental disorders (192)	1. Organic behavioral disorder - unspecified	45 (23.4)	38.3 (16.3)	53.7	14.6	Trifluoperazine + biperiden (10, 22.2) Trifluoperazine + promethazine (6, 13.3) Chlorpromazine + promethazine (6, 13.3)
	2. Organic behavioral disorder – HIV	31 (16.2)	36.7 (12.1)	<b>70.0*</b>	10.3	Fluphenazine + promethazine (6, 19.4) Trifluoperazine + promethazine (2, 9.1) Trifluoperazine (2, 9.1)
	3. Organic psychosis	22 (11.5)	37.4 (15.1)	59.1	<b>33.3*</b>	Haloperidol + promethazine (5, 22.7) Trifluoperazine + promethazine (2, 9.1)
	4. Dementia	19 (9.9)	<b>68.0† (13.1)</b>	64.7	<b>37.5*</b>	Chlorpromazine + promethazine (4, 21.1) Chlorpromazine (4, 21.1)
F10-19: Mental and behavioral disorders due to psychoactive substance use (92)	1. Behavioral disorder due to alcohol	22 (23.9)	<b>40.4* (10.8)</b>	<b>13.6†</b>	22.2	Chlorpromazine + promethazine (3, 13.6)
	2. Behavioral disorder due to multiple drugs	22 (23.9)	<b>27.5* (7.6)</b>	<b>9.5†</b>	<b>10.0†</b>	Fluphenazine + promethazine (5, 22.7) Chlorpromazine + promethazine (3, 13.6) Haloperidol + promethazine (3, 13.6)
	3. Alcohol dependence	18 (18.6)	37.6 (12.2)	<b>5.6†</b>	<b>44.4†</b>	None (7, 38.9) Chlorpromazine (2, 11.1)
	4. Substance dependence	10 (10.9)	31.6 (7.4)	25.0	12.5	Chlorpromazine + promethazine (2, 20.0)

F20-29: Schizophrenia, schizotypal, and delusional disorders (894)	1. Schizophrenia	617 (69.0)	34.4 (10.6)	52.9	<b>3.3†</b>	Decanoate of fluphenazine + promethazine (131, 21.2) Trifluoperazine + promethazine (62, 10.1)
	2. Delirium	114 (12.8)	35.2 (12.0)	50.5	10.5	Fluphenazine + promethazine (25, 21.9) Chlorpromazine + promethazine (20, 17.5)
	3. Persistent delirium	40 (4.5)	38.4 (14.1)	46.2	10.8	Trifluoperazine (8, 20.0) Trifluoperazine + promethazine (5, 12.5) Fluphenazine + promethazine (5, 12.5)
	4. Chronic psychosis	22 (2.5)	34.8 (11.8)	50.0	0.0	Haloperidol + promethazine (7, 31.8)
F30-39: Mood (affective) disorders (40)	1. Depressive episode	15 (37.5)	<b>44.5* (15.3)</b>	<b>86.7*</b>	23.1	Imipramine (3, 20.0) Amitriptyline (3, 20.0)
	2. Depression	13 (32.5)	39.3 (9.4)	81.8	27.3	Amitriptyline (6, 46.2) Fluoxetine (3, 23.1)
	3. Bipolar	5 (12.5)	32.8 (4.4)	100.0	0.0	Risperidone + carbamazepine (2, 40)
F40-48: Neurotic, stress-related, and somatoform disorders (97)	1. Adjustment disorder	19 (19.6)	40.2 (7.9)	73.3	<b>33.3*</b>	Amitriptyline (4, 21.1) Imipramine (3, 15.8)
	2. Neurotic disorder	14 (14.4)	34.1 (9.5)	46.2	<b>30.8*</b>	Amitriptyline (4, 28.6) Fluoxetine (4, 28.6)
	3. Somatic disorder	13 (13.4)	35.2 (9.5)	46.2	<b>36.4*</b>	Amitriptyline (4, 30.8)
	4. Anxiety	8 (8.3)	34.6 (9.5)	85.7	37.5	Amitriptyline (4, 50.0) Imipramine (2, 25.0)
F50-59: Behavioral syndromes	1. Insomnia	9 (39.1)	33.2 (15.0)	22.2	33.3	Flunitrazepam (3, 33.3)

associated with physiological or physical factors (23)						Bromazepam (2, 22.2)
	2. Sexual dysfunction	4 (17.4)	42.8 (9.6)	0.0	<b>100.0†</b>	
	3. Organic insomnia	4 (17.4)	38.3 (17.6)	66.7	25.0	Flunitrazepam (2, 50.0)
	4. Non-organic insomnia	4 (17.4)	34 (6.1)	33.3	50.0	
F60-69: Disorders of adult personality and behavior (7)	1. Personality disorder - general	5 (62.5)	31.3 (6.6)	60.0	0.0	
	2. Schizoid personality disorder	2 (25.0)	30 (8.5)	0.0	100.0	
F70-79: Intellectual disability (40)	1. Intellectual disability	40 (100)	<b>27.4† (9.9)</b>	59.0	21.6	Haloperidol (8, 20.0) Haloperidol + promethazine (6, 15.0)
F80-89: Disorders of psychological development (0)	n/a	n/a	n/a	n/a	n/a	n/a
F99-98: Behavioral and emotional disorders with youth onset (2)	1. Motor hyperactivity	1 (50)	2 (n/a)	100.0	missing	Carbamazepine (1, 100.0)
	2. Tardive dyskinesia	1 (50)	68 (n/a)	0.0	0.0	Promethazine (1, 100.0)
G40-41: Epilepsy and recurrent seizures (264)	1. Epilepsy	262 (100)	<b>30.6† (12.4)</b>	<b>40.5*</b>	11.8	Carbamazepine (167, 63.7) Phenobarbital (34, 13.0)

\* p < 0.05

† p < 0.001

‡ Less than four most common narrative diagnoses are listed because there was no other majority diagnosis after those listed.

§ Top two most common treatment regimens are listed, unless a tie for second. In this case, three are listed. If a three way tie for 2<sup>nd</sup> most common treatment regimen, then only one is listed. If no majority, no treatment is listed. All medications listed are included in the essential medication list with the exception of risperidone