Patient Related Outcome Measures

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ORIGINAL RESEARCH

Functional Disability in Patients with Mood Disorders at St Paul's Hospital Psychiatry Clinic, Addis Ababa, Ethiopia, 2019

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Background: Functional disability is defined as limitations in performing socially defined roles and tasks expected within a sociocultural and physical environment. Functionality is a result of good mental health care. This study aimed to assess the magnitude and determinants of functional disability among patients with a mood disorders treated at St Paul's Hospital outpatient psychiatry clinic, Addis Ababa, Ethiopia in 2019.

Methods: This was a cross-sectional study. We used consecutive sampling to select respondents. Data were collected through face-to-face interviews using the 12-item World Health Organization Disability Assessment Schedule version 2.0. Data were entered into EpiData 3.1 and exported to SPSS 22.0 for analysis. Linear regression analysis was used to identify significant variables associated with outcomes.

Results: This study enrolled 235 respondents with a 100% nonresponse rate, and 62.5% were diagnosed with major depressive disorder. Mean disability score was 30.2%±32.4%. Nearly a quarter of respondents had had difficulties every day with day-to-day activity for the past 30 days. Current level of improvement (no change, β=10.5, 95% CI 3.85–17.2), relapse (β=6.15, 95% CI 1.34–10.9) and self-stigma (β=4.36, 95% CI 1.39–7.33) were strong predictors of disability score (P<0.05).

Conclusion: This study found a mean disability score of 30.2%. Current level of improvement and self-stigma were variables associated with disability, so working with stakeholders to focus on patients' clinical improvement from their illness and self-stigma will be vital to enhance their functionality.

Keywords: functional disability, mood disorder, St Paul's hospital, Addis Ababa, Ethiopia

Introduction

Functional impairment in mental illness is a common challenge in which normal bodily functions are at less than full capacity. It ranges from a mild situation involving only a slight loss of function to total impairment.[1] According to the World Health Organization (WHO) disease-burden calculation, mental disorders account for 25.3%–33.5% of all years lived with a disability in low- and middle-income countries. The most common mental disorders worldwide that cause disability are unipolar depressive disorders, schizophrenia, bipolar disorder, and alcohol-use disorders, with 19.1% being mood disorders.[2]

Mood disorders have a significant negative impact on daily quality of life and psychosocial functioning among patients, parents, and relatives. In a study conducted

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in six European countries, mood disorders were ranked second among disabling mental illnesses.[3,4]

Bipolar disorder has higher disability-adjusted life-years than cancer, ischemic heart disease, and neurological conditions, due to its early onset and chronicity across the life span.[5]

According to a WHO report, by 2030 major depressive disorder will be the leading cause of years of disability.[6] Major depressive disorder is more common than chronic medical conditions, such as cardiovascular disorders. Moreover, the impairment continues even during remission from clinical symptoms.[7,8]

Patients with a mood disorders syndromic recovery (no longer fulfilling the formal criteria of a mood episode) do not necessarily move to a level of functioning comparable to healthy persons, which may in part be due to persistent subsyndromic symptoms.[9]

Among all bipolar disorder patients, only a third achieve full social and occupational recovery with interpersonal and cognitive–behavioral therapies.[10,11]

Mood disorders affects patient functionality by reducing their ability to perform day-to-day activities, which results in devastating losses of their contribution to family, community, and the country at large. They also cause stigma, poverty, and family burden.[12–14]

Factors contributing to disability in mood-disorder patients are age atonset, duration of treatment, delays in treatment, type of mood disorder, current symptom severity, self-esteem, nonadherence, stigma resistance, and internalized stigma.[15–22]

Despite these facts, there are few data available on functional disability in patients with mood disorders in Ethiopia. Therefore, this study aimed to examine functional disability and determinant factors among patients with mood disorders. The results might be vital for mental health professionals, policymakers, and organizations working in mental health to work on factors contributing to disability and enhance the functionality of patients with mood disorders.

Methods

Study Area, Period, and Design

This institutional-based cross-sectional study design, conducted from February 2 to March 10, 2019 at St Paul's Hospital, Addis Ababa, capital of Ethiopia, on outpatients attending monthly psychiatry sessions. A total of 3,500 patients with mood disorders were receiving follow-up treatment.

Eligibility Criteria

Respondents with a current diagnosis of bipolar or major depressive disorder and aged ≥18 years were eligible to participate.

Respondents were diagnosed using DSM-5 criteria by a licensed psychiatrist. Exclusion criteria were were acute symptoms needing emergency treatment, comorbid physical illness (from medical records), or other mental disorders (using DSM-5 criteria).

Sample-Size Calculation and Sampling Technique

Calculation of magnitude of the outcome variable (functional disability), a continuous variable and scored out of 100, used SD (variance) from a similar previous study. To calculate sample size, a single population–proportion formula of a continuous variable ($n = Z\ [\alpha/2)^2\ \sigma^2/d^2]$), and the SD from the previous study (σ^2=0.18) was used,[23] where n =is the required sample size — $n = Z\ (\alpha/2)^2\ \sigma^2/d^2$, $\sigma^2 = 0.18$:

(1.96) (1.96) (0.18) (0.82)/(0.05) (0.05) = 226

and Z the reliability coefficient at 95% confidence (1.96)

W (margin of error) = 0.05

N (nonresponse rate 10%) = 26

As such the sample size was 226+26 =252

Since the population was <10,000, a correction formula was used: $nf = n/1 + n/N = 252/1+252/3,500=235$

We used consecutive sampling. All respondents who came for psychiatry-outpatient visits during the data-collection period and fulfilled the inclusion criteria were selected sequentially, based on their order of arrival at the hospital.

Data-Collection Instruments

The WHO Disability Assessment Schedule (WHODAS) version 2.0 was used to assess the functional disability of patients with mental illness. This has 12 items and is scored using percentages.[24]

To assess internalized stigma, we used theInternalized Stigma of Mental Illness (ISMI) scale. This has a total of 24 items using a four-point Likert scale (1 = strongly agree to 4 = strongly disagree) on five subscales: alienation (six items), stereotype endorsement (seven items), discrimination experience (five items), and social withdrawal (six items).[25]

To assess stigma resistance, we used a subcomponent of Internalized Self-Stigma scale, which is scored on a four-point Likert scale: 1 = strongly disagree, 2 = disagree, 3 = agree, and 4= strongly agree. Scores are then summed (20 points maximum), with higher scores indicating higher resistance.[26]

The Rosenberg Self-Esteem Scale was used to measure self-esteem among respondents. We used ten items. Each item is scored on a four-point Likert scale: 1 = strongly disagree, 2 = disagree, 3 = agree, and 4= strongly agree. Higher scores indicate higher self-esteem.[27]

To measure the current clinical improvement, we used the Clinical Global Impression scale, which is scored from very much improved (1) to very much worse (7). For this study, we adapted as to fully improved (1), partially improved (2), no change (3), and relapse (4), as assessed by the clinician.[26]

Dependent Variable

This was functional disability.

Independent Variables

Sociodemographic and Economic Variables

These were age, sex, educational status, occupational status, marital status, and monthly income.

Clinical Variables

These were duration of mental illness, suicide attempt(s), current clinical improvement, latency and length of treatment, age at mental illness onset, history of stopping medication, and type of diagnosis.

Psychosocial Variables

This study hypothesized that internalized stigma, stigma resistance, and self-esteem have a negative relationship with the functionality disability of patients with a mood disorder.

Data-Collection Procedures and Quality Control

All questionnaires were translated into the local Amharic language before data collection and back-translated to English. Finally, we used the Amharic questionnaire for data collection. Data were collected through face-to-face interviews using the WHODAS 2.0. Data collectors and supervisors were trained for 2 days on the purpose of the study, details of the questionnaire, interviewing techniques, the importance of privacy, and ensuring the confidentiality of respondents. Supervisors and investigators corrected all before data entry.

Data Processing and Analysis

Data entered into EpiData software package. After double data-entry verification, data were exported to and analyzed using the SPSS22.

Descriptive statistics such as, frequencies, percentages and cross-tabulation were calculated to see the distribution of study variables among study participants. Results are summarized using tables, graphs, and narrative descriptions.

We used bivariate logistic regression analysis at 95% confidence(P<0.25) to identifycandidate variables for multivariate linear regression analysis, which also used95% confidence(P<0.05) to determine independent predictors of the outcome variable. Logistic regression assumptionsof normality, linearity, and homogeneity of variance were checked and met. To avoid highly correlated variables, We used exploratory correlation analysis.

Results

A majority of participants were female 142 (60.4%), with mean age37.94±13.2 years, and 104 (44.3%) were single. In sum 218 (92.8%), had had some education and 93 (39.6%) were in either college or university. Around a quarter (65, 27.7%) were unemployed, and nearly half were either government or private employees (109, 46.4%). Around half (100, 42.6%) had no income, and mean monthly income was US$59.65±$85.7 (Table 1).

Clinically Related Factors

All respondents had been diagnosed using DSM-5 criteria by a licensed psychiatrist. In total, 88 (37.4%) had bipolar disorder and nearly two-thirds (147, 62.6%) major depression disorder. Among those with bipolar disorder 88 (37.4%), 56 (63.6%) were taking carbamazepine 600–1,000 mg and the remainder (32, 36.4%) sodium valproate 800–1500 mg.

Among those with major depressive disorder (147), 95 (64.6%) were taking 75 mg amitriptyline, 30 (20.4%) fluoxetine 20 mg, and 20 (13.6%) sertraline.

Mean age of onset of illness, duration of illness, duration of treatment delay, and duration of treatment was 27.89±1.2, 10±9.4, 2.6±1.8, and 7.45±6.1 years, respectively.

A total of 203 (86.4%) respondents had current partial or ful clinical improvement. Mean of self-esteem score was 26±4 (13–37). More than a third (35.7%) had a history of suicide attempts. Half(48.5%) had a history

Table 1 Sociodemographic Characteristics of the Patients (n =235)

Category	n	%	
Sex	Male	93	39.6
	Female	142	60.4
Marital status	Single	104	44.3
	Married	92	39.1
	Divorced	19	8.1
	Widowed	20	8.5
Education	None	17	7.2
	Primary	54	23.0
	Secondary	71	30.2
	More than secondary	93	39.6
Occupation	Unemployed	65	27.7
	Housewife	25	10.6
	Student	24	10.2
	Other*	12	4.3
	Government employee	53	22.6
	Private employee	56	23.8

Notes: *Daily laborer, farmer, retired.

of treatment non,adherence, and of these, almost a third (29.8%) claimed stigma play a role in their nonadherence (Table 2).

Functionality Status (Last 30 Days)

In total, 135 (57.4%) **respondents** reported having had difficulties (needing to cut back) in performing their activities compared to before the illness, 71 (30.2%) were totally unable to perform their activities, and 149 (63.4%) had had difficulties present for 1–30 days.

Table 2 Clinically Related Characteristics of Patients (n =235)

Category	n	%	
Current diagnosis	Bipolar	88	37.4
	Depression	147	62.6
Current level of improvement	Fully improved	112	47.7
	Partially improved	91	38.7
	No change	9	3.8
	Relapse	23	9.8
Suicide attempt(s)	Yes	84	35.7
	No	151	64.3
Medication nonadherence	Yes	114	48.5
	No	121	51.5

WHODAS Scores

Mean disability score was 30.2%±32.4%, and from all the items used to measure disability, nearly half the respondents reported being extremely emotionally affected by their illness. Of these, 76% had been diagnosed with major depressive disorder (Table 3).

Internalized Self-Stigma Components

Thhe overall mean score on the 24-item ISMI scale was 2.2±0.63, and 80.4% of participant had responded with "agree" or "strongly agree" on at least one item Table 4).

Correlation Analysis

Respondents who reported suicide attempt(s) had high disability scores (r=1.74, P=0.007) and high self-stigma scores (r=0.463, P=0). Men had lower disability scores (r= −0.151, P=0.02; Table 5).

Bivariate Linear Regression Analysis

Factors Associated with Functional Disability

Variables associated with disability on bivariate logistic regression analysis at 95% CI and P<0.25 were duration of treatment, level of improvement, suicide attempt(s), stigma resistance, self-esteem, and self-stigma and proceeded to multivariate linear regression.

Multivariate Linear Regression Analysis

On multivariate linear regression analysis (95% CI, P<0.05), variables associated with the outcome variable (functional disability) were current level of improvement (no change, β=10.5, 95% CI 3.85–17.2), relapse, (β=6.15, 95% CI 1.34–10.9), and self-stigma (β=4.36, 95% CI 1.39–7.33; Table 6).

Discussion

Functional disability is a common negative consequence of mental illness that affects the cognition, interpersonal communication, self-care, and motor function of patients. The degree of impairment among mentally ill patients living in low- and middle-countries is considerable, due to various psychosocial stressors within families and communities. This study recruited patients diagnosed with a mood disorder and aimed to assess functional impairment as a result of their illness.

We found that 90% of respondents with a diagnosis of depression were severely affected in terms of learning new tasks. However, only 10% of respondents with bipolar disorder reported being were severely affected due to their illness, supported by studies conducted in the US,[28] UK,[29] and

Table 3 WHODAS 2.0 Responses by Current Diagnosis (n=235)

Question	Response	Current Diagnosis		Total, n (%)	
		Bipolar, n (%)	Depression, n (%)		
Getting around	W1. Standing for long periods, such as 30 minutes	None Mild Moderate Severe Extreme	68(45.3%) 3(30.0%) 9(32.1%) 3(12.0%) 5(22.7%)	82(54.7%) 7 (70.0%) 19(67.9%) 22(88.0%) 17(77.3%)	150(63.8) 10(4.3%) 28(11.9%) 25 (10.6%) 22(9.4%)
	W7. Walking a long distance, such as 1 km	None Mild Moderate Severe Extreme	64(45.4%) 5(33.3%) 5(19.2%) 7(3.0%) 7(28.0%)	77(54.6%) 10(66.7%) 21(80.8%) 21(8.9%) 18(72.0%)	141(60.0%) 15(6.4%) 26(11.1%) 28(11.9%) 25(10.6%)
Activities at home/ work/school	W2. Taking care of household responsibilities	None Mild Moderate Severe Extreme	54(42.2%) 5(41.7%) 9(33.3%) 7(20.0%) 13(39.4%)	74(57.8%) 7(58.3%) 18(66.7%) 28(80.0%) 20(60.6%)	128 (54.5%) 12(5.1%) 27(11.5%) 35(14.9%) 33(14.0%)
	W12. Day-to-day work/school	None Mild Moderate Severe Extreme	54(43.5%) 8(47.1%) 6(25.0%) 8(25.8%) 12(30.8%)	70(56.5%) 9(52.9%) 18(7.7%) 23(74.2%) 27(69.2%)	124(52.8%) 17(7.2%) 24(10.2%) 31(13.2%) 39(16.6%)
Understanding and communication	W3. Learning a new task, eg, learning how to get to a new place	None Mild Moderate Severe Extreme	59(42.8%) 75(3.8%) 11(33.3%) 3(10.0%) 8(38.1%)	79(57.2%) 6(46.2%) 22(66.7%) 27(90.0%) 13(61.9%)	138(58.7%) 13(5.5%) 33(14.0%) 30(12.8%) 21(8.9%)
	W6. Concentrating on doing something for 10 minutes	None Mild Moderate Severe Extreme	54(46.6%) 8(50.0%) 12(35.3%) 6(18.8%) 8(21.6%)	62(53.4%) 8(50.0%) 22(64.7%) 26(81.3%) 29(78.4%)	116(49.4%) 16(6.8%) 34(14.5%) 32(13.6%) 37(15.7%)
Participation in society	W4. How much of a problem did you have joining in community activities in the same way as anyone else?	None Mild Moderate Severe Extreme	59(41.5%) 4(1.7%) 11(4.7%) 52(3.8%) 9(24.3%)	83(58.5%) 3(1.3%) 17(7.2%) 16(76.2%) 28(75.7%)	142(60.4%) 7(3.0%) 28(11.9%) 21(8.9%) 37(15.7%)
	W5. How much have you been emotionally affected by your health problems?	None Mild Moderate Severe Extreme	51(46.4%) 4(36.4%) 12(33.3%) 9(34.6%) 12(23.1%)	59(53.6%) 7(63.6%) 24(66.7%) 17(65.4%) 40(76.9%)	110(46.8%) 11(4.7%) 36(15.3%) 26(11.1%) 52(22.1%)

(*Continued*)

Table 3 (Continued).

Question	Response	Current Diagnosis		Total, n (%)	
		Bipolar, n (%)	Depression, n (%)		
Self-care	W8. Washing whole body	None Mild Moderate Severe Extreme	65(41.7%) 4(36.4%) 2(11.1%) 10(38.5%) 7(29.2%)	91(58.3%) 7(63.6%) 16(88.9%) 16(61.5%) 17(70.8%)	156(66.4%) 11(4.7%) 18(7.7%) 26(11.1%) 24(10.2%)
	W9. Getting dressed	None Mild Moderate Severe Extreme	70(42.9%) 3(37.5%) 4(20.0%) 8(34.8%) 3(14.3%)	93(57.1%) 5(62.5%) 16(80.0%) 15(65.2%) 18(85.7%)	163(69.4%) 8 (3.4%) 20(8.5%) 23(9.8%) 21(8.9%)
Getting along with others	W10. Dealing with people you do not know	None Mild Moderate Severe Extreme	75(46.6%) 0 3(13.6%) 6(27.3%) 4(16.7%)	86(53.4%) 6 (2.6%) 19(86.4%) 16(72.7%) 20(83.3%)	161(68.5%) 6(2.6%) 22(9.4%) 22(9.4%) 24(10.2%)
	W11. Maintaining a friendship	None Mild Moderate Severe Extreme	65(43.3%) 6(33.3%) 2(11.8%) 8(32.0%) 7(28.0%)	85(56.7%) 12(66.7%) 15(88.2%) 17(68.0%) 18(72.0%)	150(63.8%) 18(7.7%) 17(7.2%) 25(10.6%) 25(10.6%)

Table 4 Internalized Stigma Results of Respondents (n=235)

Components	Mean (SD)
Alienation	15.3(4.93)
Stereotype endorsement	16.2(4.8)
Discrimination	10.6(3.8)
Social withdrawal	12.6(4.4)

Canada.[30] This might be explained by the nature of depression, which predominantly affects attention, concentration, memory, decision-making, motivation, and reasoning, which are vital for performing a new task.

The mean disability score in this study was 30.2%, higher than studies from Sudan (24.4%)[23] and Nigeria (24.93%).[23] This might be due to differences in frequency of current psychiatric diagnosis. A majority of respondents in this study were diagnosed with major depressive disorder, which is associated with high disability score.

Respondents with a history of suicidal attempts showed a 1.74-unit increase (P=0.007) in disability scores, similar to studies conducted in the US,[31] sub-Saharan Africa,[32] and north Africa.[33] Suicidal ideation has negative consequences for self-esteem, social relationships, stigma resistance, and day-to-day activities, which are directly related to poor adherence, treatment outcomes, and functionality.

Male sex decreased disability scores 0.15 unitscompared to female sex, supported by studies conducted in Switzerland,[34] London,[35] and China.[36] Women, have low levels of the hormone kynurenine, a metabolite of tryptophan that is responsible for speedy processing, cognition, learning, and normal psychosocial functioning.

Respondents with no change in clinical improvement showed a 10.5-unit increase in disability scores compared to those who had full improvement, in line with a community-based study conducted in Ethiopia.[24]

Respondents' current clinical improvement had an impact on their self-care, social activity, emotions, work performance, and other domains of functional disability.

A one-unit increase in self-stigma scores resulted in an increasein disability scores of 4.36 units (β=4.36, 95% CI 1.39–7.33), similar to studies done in Asia[37] and India.[38]

Table 5 Correlations among Functionality Score, Previous Suicide Attempt(s), Self-Stigma, and Sex of Respondents (n=235)

		Suicide Attempt(s)	Disability Score	Male Sex	Self-Stigma Score
Suicide attempt(s)	Pearson correlation *P* (two-tailed) n	1 235	0.174** 0.007 235	−0.077 0.239 235	0.463** 0 235
Functionality score	Pearson correlation *P* (two-tailed) n	0.174** 0.007 235	1 235	−0.151* 0.021 235	−0.130* 0.046 235
Male sex	Pearson correlation *P* (two-tailed) n	−0.077 0.239 235	−0.151* 0.021 235	1 235	0.128 0.050 235
Self-stigma score	Pearson correlation *P* (two-tailed) n	0.463** 0.000 235	−0.130* 0.046 235	0.128 0.050 235	1 235

Notes: **$P<0.01$; *$P<0.05$.

Table 6 Multiple Linear Regression Analysis of Respondents Attending Treatment (n=235)

	α	*β*	*P*	95% CI	
	14.598	0.071	−1.273	30.469	
Duration of treatment		−0.156	0.056	−0.317	0.004
Current level of improvement	Fully improved Partially improved No change Relapse	1 1.501 10.576 6.159	 0.312 0.002** 0.012*	 −1.418 3.857 1.349	 4.419 17.294 10.969
Suicide attempt(s)	Yes No	2.244 1	0.098	−0.418	4.905
Stigma resistance		−0.316	0.209	−0.811	0.179
Self-esteem		−4.129	0.052	−8.287	0.028
Internalized stigma		4.367	0.004**	1.397	7.338

Notes: α, constant (1); *$P<0.05$; **$P<0.01$.

Self-stigma causes low self-esteem that directly affects the patient's day-to-day activity, social interaction, community participation, and other major domains of psychosocial functioning.

Limitations

Despite this study having much strength, it has also limitations, such as recall bias for memory of age at onset and relapses, clinician bias for interpretation ofclinical improvement based on clinical experience, and social desirability bias for disclosing self-harm (suicide attempts). Inadequate data on the same population (mood disorders) hinder comparable discussion of the results. Also, the cross-sectional study nature of the study was not able to reflect the exact cause–effect relationship of the outcome variable.

Conclusion

The mean disability score in this study was 30.2%±32.4%. Relapse, internalized stigma, and patients with no change in clinical response were variables associated with disability, pointing to a need to work needed to enhance patients' clinical improvement through integrating the biopsychosocial model treatment approach. For tackling self-stigma, giving psychoeducation, teaching coping mechanisms, which help in reducing self-criticism, and providing quality care through integrating community mental-health services will be a solution to increase the functionality of

patients. There should be collaboration among patients, families, clinicians, health organizations, and the Ministry of Health addressing medication adherence and self-stigma, fundamental to clinical improvement and functionality.

Abbreviations

iISMI, Internalized Stigma of Mental Illness; WHODAS, World Health Organization Disability Assessment Schedule.

Data Sharing Statement

The data sets used/or analyzed during the current study are available from the corresponding author on reasonable request.

Ethics Approval and Consent to Participate

We obtained clearance to proceed from the ethics review board of Addis Ababa University. Written informed consent was obtained from each respondent after the objectives and aims of the research had been discussed.

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Disclosure

The authors declare that they have no competing interests in this work.

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