BMJ Open

The magnitude of internalized stigma and associated factors among people with bipolar disorder at Amanuel mental specialized, hospital Addis ababa, Ethiopia: A cross-sectional study

Journal:	*BMJ Open*
Manuscript ID	bmjopen-2020-044824
Article Type:	Original research
Date Submitted by the Author:	17-Sep-2020
Complete List of Authors:	Alemnew, Nigus ; Department of psychiatry W/Michele , Bethlehem; Amanuel Mental Specialized Hospital, Department of Psychiatry Angaw, Dessie ; University of Gondar College of Medicine and Health Sciences, Department of Epidemiology and Biostatistics Ergete, Temesgen ; Debre Berhan University, Department of Psychiatry shumet, shegaye; University of Gondar College of Medicine and Health Sciences, Department of Psychiatry
Keywords:	Adult psychiatry < PSYCHIATRY, Depression & mood disorders < PSYCHIATRY, Anxiety disorders < PSYCHIATRY

I, the Submitting Author has the right to grant and does grant on behalf of all authors of the Work (as defined in the below author licence), an exclusive licence and/or a non-exclusive licence for contributions from authors who are: i) UK Crown employees; ii) where BMJ has agreed a CC-BY licence shall apply, and/or iii) in accordance with the terms applicable for US Federal Government officers or employees acting as part of their official duties; on a worldwide, perpetual, irrevocable, royalty-free basis to BMJ Publishing Group Ltd ("BMJ") its licensees and where the relevant Journal is co-owned by BMJ to the co-owners of the Journal, to publish the Work in this journal and any other BMJ products and to exploit all rights, as set out in our licence.

The Submitting Author accepts and understands that any supply made under these terms is made by BMJ to the Submitting Author unless you are acting as an employee on behalf of your employer or a postgraduate student of an affiliated institution which is paying any applicable article publishing charge ("APC") for Open Access articles. Where the Submitting Author wishes to make the Work available on an Open Access basis (and intends to pay the relevant APC), the terms of reuse of such Open Access shall be governed by a Creative Commons licence – details of these licences and which Creative Commons licence will apply to this Work are set out in our licence referred to above.

Other than as permitted in any relevant BMJ Author's Self Archiving Policies, I confirm this Work has not been accepted for publication elsewhere, is not being considered for publication elsewhere and does not duplicate material already published. I confirm all authors consent to publication of this Work and authorise the granting of this licence.

The magnitude of internalized stigma and associated factors among people with bipolar disorder at Amanuel mental specialized, hospital Addis Ababa, Ethiopia: A cross-sectional study

Nigus Alemnew[1], Bethlehem W/Michele[3], DessieAbebaw[4], Temesgen Ergete,[5] Shegaye Shumet*[2]

1 Department of Psychiatry, DebreBerhan University, Debre Berhan, Ethiopia:
2 Department of Psychiatry, College of Medicine and Health Sciences, University of Gondar, Gondar, Ethiopia.
3 Department of psychiatry, Amanuel Mental Specialized Hospital, Addis Ababa, Ethiopia:
4 Department of Epidemiology and Biostatics, College of Medicine and Health Sciences, University of Gondar, Gondar, Ethiopia
5 Department of Psychiatry, College of Medicine and Health Sciences, Bahir Dar University, Bahir Dare, Ethiopia.

E-mails

NA=nigusalemnew2014@gmail.com

SS=shumetshegaye@yahoo.com

BW=Bethwolde@gmail.com

DA= dessieabebaw96@gmail.com

TE= Tomtemesgen@gmail.com

*Corresponding Author. Shegaye Shumet

Department of Psychiatry, University of Gondar, Gondar, Ethiopia

. Tel.:+251918045505/+251967148362 Email: shumetshegaye@yahoo.com , P.O.BOX:196

Abstract

Objectives: To assess the magnitude of internalized stigma and associated factors among bipolar patients attending the outpatient department of Amanuel Mental Specialized Hospital, Addis Ababa, Ethiopia.

Design: Institution based, cross-sectional study design.

Setting: Amanuel Mental Specialized Hospital, Addis Ababa, Ethiopia.

Participants: we recruited about 418 participants using systematic sampling technique for an interview during the study period.

Measurement: Data were collected by face-to-face interview. Internalized stigma of mental illness scale was used to measure internalized stigma. The Rosenberg self- esteem scale and the Oslo-3 social support were instruments used to assess the associated factors. Bivariate and multivariate logistic regressions were performed to identify factors associated with the outcome variable. Odds ratio with 95% confidence interval were computed to determine the level of significance.

Results: The magnitude of internalized stigma was 24.9 %(95%CI: 21.2-28.9%). In the multivariate analysis, unemployed (Adjusted odd ratio (AOR)=2.3,95% CI :1.0,5.0), unable to read and write(AOR=3.3,95%CI:1.05,10.7),poor social support(AOR= 5.3,CI:1.9,15.0), ≥4previous hospitalization due to bipolar disorder(AOR= 2.6,95% CI:1.1,6.1) and low self-esteem(AOR= 2.4,95%CI:1.1,5.1) had a significant association with internalized stigma.

Conclusions: One in four bipolar patients reported high internalized stigma. Unemployment, low educational status, low self-esteem, poor social support and more than or equal to four hospitalization had significantly associated with internalized stigma. Thus, stigma reduction program is essential by focusing on self-esteem improvement and psychological health of patients to increase their stigma resistance for counteracting effects of internalized stigma.

Strengths and limitations of the study

- The limitation of the study emanates from its cross-sectional design, which might not show causal relationship.
- Social and recall biases might have occurred among patients while interviewing the questionnaire.

- Internalized stigma scale can be used for future studies because it had good internal consistency in this study.

Key words: Internalized Stigma, Bipolar disorder, Ethiopia

Introduction

The World Health Organization (WHO) considers stigma of mental illness as a global health problem since it has a direct effect on the overall quality of life of people with mental illness [1, 2]. Mental health research has identified different interrelated levels of stigma, including internalized stigma [3]. Internalized stigma refers to the phenomenon by which negative stereotypes about mental illness are accepted and incorporated into the identity of people with severe mental illnesses [4, 5].

Bipolar disorder is one of the most severe mental illnesses characterized by fluctuating periods of mania and depression. In severe episodes of the disorder, it contains delusions and hallucinations[6]. Due to its early onset, severe and chronic nature, It is a disabling illness [7]. It is the sixth cause of disability[8]. Some studies in developed and developing countries showed 18.5% to 46% of patients have internalized stigma related to the disorder [9-16]. For example, the magnitude of internalized stigma has been 38.7% in Kerala, India[14], 21.6 %, 33.7% in Nigeria[13, 17]. Because of internalized stigma, patients might have a reduction of moral, increased avoidance behaviors, and reduced social functioning [18-20]. It also has impacts on an individual's decision to seek treatment and create similar barriers to life opportunities and achievements [21, 22]. Moderating and risk factors for internalized stigma among bipolar patients have been sex, middle age, low level of education, unemployment, severity of depression, perceived social support, family history of mental illness, number of previous hospitalization, longer duration of illness, and low self esteem[9-11, 14, 16, 17, 23, 24]. Patients belief about the cause of mental illness is more frequently associated with stigmatized attitude and less likely to seek the recommended treatment[25]. Patients with high internalized stigma have lower adherence to their treatment and the more severe the condition[26]. Many bipolar patients discontinue their prescribed medications and re-hospitalized due to relapse of the illness, which results in a high cost for a health care system. Even though internalized stigma is high and has different impacts in bipolar patients, there is no study which shows the magnitude of internalized stigma among patients diagnosed with bipolar disorder in Ethiopia. Therefore; determining the magnitude and associated factors of internalized stigma of patients diagnosed with bipolar disorder is important for controlling bipolar symptoms, decrease the burden of

relapse and regain basic life functioning which all contributes for improving patients' quality of life.

Objective

This study set out to assess the magnitude of internalized stigma and associated factors among people with bipolar disorder at Amanuel mental specialized, hospital Addis Ababa, Ethiopia, 2016.

Methods and materials

Study setting and populations

Institution based cross-sectional study design was conducted among patients diagnosed with bipolar disorder who had follow up at Amanuel Mental Specialized Hospital (AMSH) in Addis Ababa, Ethiopia between May and June 2016. AMSH is the first hospital started in mental health service in Ethiopia, and give treatment service in the outpatient department and inpatient setting for patients with different mental health problems.

Sample size determination and technique

We determined the sample size by using the single population proportion formula with the assumptions of 50% prevalence of internalized stigma, 0.5P, 1.96Z (standard normal distribution), 95% CI, α=0.05, and a 10% non-response rate. Accordingly, a representative/probabilistic sample was calculated to be 423. We used systematic sampling technique to select 423 participants with every two sampling intervals. The first case was selected randomly from the 1st and 2nd patients and continued every other patient until we got the calculated sample size. The study included participants with the diagnosis of bipolar disorder, and aged 18 years and above during data collection time. Participants unable to communicate and hearing problem were excluded**.**

Study variables

The dependent variable was internalized stigma measured by internalized stigma of mental illness (ISMI).We measured internalized stigma as a dichotomous variable (yes/no).Independent variables included socio-demographic factors (age, sex, ethnicity, religion, marital status, educational status and occupational status), psychosocial factors(self-esteem, social support),and clinical factors (age at onset of the illness, number of episode, duration of treatment, umber of previous hospitalization, and type of episode).

Data sources and measurement

Data were collected via a face-to-face interviews using semi-structured questionnaire by trained data collectors. Data were collected by six trained data collectors (six mental health professionals) using the Amharic version of the questionnaire for a month. The questionnaire was designed in English and was translated to Amharic, the official language of Ethiopia. The training was on introduction to bipolar and stigma, research methods, interviewing skills, sampling and recruitment and ethical aspects of research. Prior to the actual data collection, the Amharic version of the questionnaire was pretested among bipolar patients and some modification was done.

Internalized stigma was measured using the internalized stigma of mental illness (ISMI) scale. The scale has 29 items in five domains, namely alienation, stereotype endorsement, discrimination experience, social withdrawal and stigma resistance. ISMI had a likert response option ranging from (1) " strongly disagree" to (4) "strongly agree" and the total score was calculated by adding the scores of all 29 items[4]. It was used in Jimma, Ethiopia and had the reliability of 0.89 [24], and in this study the reliability was 0.93. A cut-off ≥2.5 had high internalized stigma[15].

Social support was measured using the Oslo 3-items social support scale with scores ranging from 3 to 14: 3–8=poor social support; 9–11=intermediate social support; and 12–14=strong social support[27].

Self-esteem was assessed using the Rosenberg self- esteem scale and categorized into low self-esteem and high self-esteem scoring[28].

Items on socio-demographic factors (age, sex, ethnicity, religion, marital status, educational status and occupational status) were adopted from a variety literature.

Data processing and analysis

All collected data were checked for completeness and consistency and entered into EPI info version 7 and then exported to SPSS for windows version 20 for analysis. We computed descriptive, bivariate and multivariate logistic regression analyses to see the frequency distribution and to test the association between independent and dependent variables, respectively. Factors associated with internal stigma were selected during the bivariate analysis with a p-value <0.2 for further analysis in the multivariable logistic regression analysis. In the multivariable logistic regression analysis, variables with P-value less than 0.05 at 95% confidence interval with adjusted odds ratio were considered as statistically significant.

Ethical consideration

Approval was obtained from the joint Ethical Review Committees of the University of Gondar and Amanuel mental specialized hospital. We received written informed consent from study participants after explaining the purpose of the study. Confidentiality was maintained by omitting personal identifiers.

Patient and public involvement

In this study, participants were clinically diagnosed with bipolar disorder and had followup at the outpatient departments of Amanuel Mental Specialized Hospital. Patients who had one or more visits were included and acutely disturbed and unable to communicate were excluded. Our study participants were also not involved in the study design and recruitment. The results of this study will be to Amanuel Mental Specialized Hospital clinicians to give an attention for stigma reduction.

Results

A total of 418 participants took part with response rate of 98.8%. From five participants, 4 were not voluntary to participate and one discontinues the interview. The mean (SD) age of the respondents was 34.29 (10.4) years, and 164(39.2%) were in the age range of 25-34 years; 216(51.7%) were male; 223(53.3%) were single, and 140 (33.5%) were secondary school. The majority,311 (74.4%) of the participants were living in urban. According to world development report 2010 180(43.1%) were above poverty bench mark **(Table 1).**

Table 1: Frequency distribution and percentage of bipolar patients on follow up at Amanuel Mental specialized Hospital, Addis Ababa, Ethiopia, 2016(n=418)

Variables	Category	Frequency	Percent
Age	18-24	66	15.8
	25-34	164	39.2
	35-44	120	28.7
	≥44	68	16.3
Sex	Male	216	51.7
	Female	202	48.3
Religion	Orthodox	230	55.0
	Muslim	94	22.5
	Protestant	82	19.6
	Others	12	2.9

Marital status	Single	223	53.3
	Divorced, widowed	65	15.6
	Married	130	31.1
Ethnicity	Amhara	151	36.1
	Oromo	120	28.7
	Gurage	75	17.9
	Other	72	17.2
Educational status	Unable to read and write	62	14.8
	Primary	103	24.6
	Secondary	140	33.5
	College and above	113	27.0
Residency	Rural	107	25.6
	Urban	311	74.4
Currently working	Yes	264	63.2
	No	154	36.8
Type of occupation	Government employ	58	13.9
	Farmer	45	10.8
	Private enterprise	121	28.9
	other	53	12.7
Household monthly income	Extreme poverty	113	27.0
	Poverty bench mark	125	29.9
	Above poverty bench mark	180	43.1

Regarding the clinical characteristics of participants, the majority, 255(61.0%) were developing the disorder before 25 years of age, and157 (37.6%) had the illness for more than 10 years. Of the respondents, 220(52.6%) had treatment duration of less or equal to six years, and 251(60%) of them had more than 2 episodes. In terms of previous hospitalization, 218(52.2%) of the patient had hospitalized because of the disorder.

A small number, 45(10.8%) of the participants were hospitalized ≥ 4 times previously, and 310(74.2%) of the participants had a manic episode. About 190 (45.5%) of the participants ever had history of traditional treatment/traditional medicine for their illness; 119 (28.5%) had family history of mental illness, and 144(34.4%) had suicidal attempt before. Out of the total 418 participants, more than half (55.7%) ever had discontinue their medication and of whom 25(10.7%) discontinue because of perceived stigma. Concerning psychosocial characteristics,

176(42.1%) of the participant had poor social support. and133 (31.8%) had low self-esteem **(Table 2).**

Table 2: Frequency and percentage of clinical and psychosocial factors among people with bipolar disorder at Amanuel mental specialized hospital, Addis Ababa, Ethiopia, 2016 (n=418).

Variables	Category	Frequency	Percent
Age at onset of illness	≤25years	255	61.0
	>25 years	163	39.0
Duration of illness	<5 years	147	35.2
	5-10years	114	27.3
	>10 years	157	37.6
Treatment duration	≤6years	220	52.6
	>6years	198	47.4
Number of episodes	<2	167	40.0
	≥2	251	60.0
Presence of hospitalization	yes	218	52.2
	no	200	47.8
Number of hospitalization	<4	175	41.9
	≥4	45	10.8
Current episode	Manic	310	74.2
	Depressive	108	25.8
Ever had traditional treatment	Yes	190	45.5
	No	228	54.5
Family history of mental illness	Yes	119	28.5
	No	299	71.5
Previous suicidal attempt	Yes	144	34.4
	No	274	65.6
Ever had discontinuation of medication	Yes	233	55.7
	No	185	44.3
Contribution of stigma for discontinuation of medication	Yes	25	5.9
	No	208	49.8
Social support	Poor	176	42.1
	Intermediate	148	35.4
	Strong	94	22.5
Self esteem	Low self esteem	133	31.8
	High self esteem	285	68.2

Magnitude of internalized stigma

The prevalence of internalized stigma among participants was 24.9 %(95%CI: 21.2, 28.9%).

Factors associated with internalized stigma

To determine the association of independent variables with internalized stigma, bivariate and multivariate binary logistic regression analyses were carried out. In the bivariate analysis, factors including current work status, educational status, residence and marital status, ever had traditional treatment, duration of illness, number of previous hospitalization, number of episode and type of current episode, social support and low self-esteem were significantly associated with internalized stigma at a P-value less than 0.2.These factors were entered into the multivariable logistic regression model to control confounding effects.

The result of the multivariate analysis showed that unemployed (AOR=2.3,95% CI :1.0,5.0), unable to read and write (AOR=3.3,95%CI:1.0,10.7),poor social support(AOR= 5.3,CI:1.9,15.0),previous hospitalization(≥4 times) (AOR= 2.6,95%CI:1.1,6.1), and low self-esteem(AOR= 2.4,95%CI:1.1,5.1)were significantly associated with internalized stigma**(Table-3).**

Table 1: Bivarate and multivariate analysis of internalized stigma and explanatory variables among people with bipolar disorder at the outpatient department of AMSH, Addis Ababa, Ethiopia, 2016(n=418).

variables	Internalized stigma		COR 95%CI	AOR95%CI	
	high	low			P-value
Current working status					
Yes	55	209	1.0	1.0	
No	49	105	1.8(1.1,2.8)	2.3(1.0,5.1)*	0.007
Residence					
Rural	32	75	1.4(0.9,2.3)	1.1(0.5,2.5)	0.244
Urban	72	239	1.0	1.0	
Marital status					
Single	64	159	1.5(0.9,2.6)	1.86(0.73,4.75)	0.356
Divorced or widowed	13	52	1.0(0.5,2.0)	0.4(0.1,1.3)	0.871
Married	27	103	1.0	1.0	
Ever had traditional Rx					
Yes	53	137	1.3(0.9,2.1)	0.9(0.4,1.8)	0.532
No	51	177	1.0	1.0	
Educational status					
Unable to read and write	24	38	2.2(1.1,4.4)	3.3(1.1,10.7)*	0.016
Primary	24	79	1.1(0.6,2.0)	1.6(0.6,4.3)	0.913
Secondary	31	109	1.0(0.6,1.8)	0.8(0.3,2.2)	0.238
College and above	25	88	1.0	1.0	
current episode					

Manic	84	226	1.0	1.0	
depressive	20	88	0.6(0.4,1.1)	1.3(0.4,3.9)	0.332
Number of episode					
<2 years	33	134	1.0	1.0	
≥2Years	71	180	1.6(1.0,2.6)	1.0(0.4,2.7)	0.894
Duration of illness					
<5 years	29	118	1.0	1.0	
5-10 years	23	91	1.0(0.6,1.9)	0.8(0.3,2.2)	0.901
>10 years	52	105	2.0(1.2,3.4)	2.1(0.8,5.5)	0.143
Self esteem					
Low	45	88	2.0(1.2,3.1)	2.3(1.1,5.1)*	0.001
High	59	226	1.0	1.0	
previous hospitalization					
<4	38	137	1.0	1.0	
≥4	20	25	2.9(1.5,5.8)	2.6(1.1,6.1)*	0.031
Social support					
Poor	67	109	2.8(1.5,5.1)	5.3(1.9,15.0)**	0.002
Intermediate	20	128	0.7(0.4,1.4)	1.1(0.4,3.2)	0.938
strong	17	77	1.0	1.0	

*=P < 0.05, **= P< 0.01), Hosmer and lemeshow test = 0.78. COR=crud odds ratio,AOR=adjusted odds ratio

DISCUSSION

This study found that a number of patients were experiencing internalized stigma. Some 24.9% of people with the disorder had internalized stigma according to internalized stigma of mental illness scale. Our finding was consistent with reports of studies across 13 Europe countries, 21.7%[10], Shanghai,China 24.2%[11],Iran, 26.7%[12], in USA, 28%[15].

Conversely, this finding was lower than 33.7% noted in Nigeria[13], 38.7% in India[14],46% in Turkey[23], and 36% in USA[16].The variation might be due to the difference in sample size and study subjects. In Turkey they used only 100 participants and in USA schizophrenic patients and other psychotic disorders included in addition to bipolar disorder patients. The inclusion of schizophrenic patients in that study may increase internalized stigma because of the continuous nature of the illness. The other variation might be, in our study most of the participants were from an urban setting and having college and above educational level which in turn reduces level of internalized stigma.

On the other hand, our finding was higher than other findings in Turkey with 18.5%[9].The discrepancy might be due to different study design and study subjects. In Turkey they used comparative cross-sectional study and all the participants were literate. This is due to the fact that those patients with lower educational status may have more internalized stigma.

The odds of internalized stigma among unemployed were 2.3 times higher than employed participants. This is consistent with the study conducted across 13 Europe countries[10], Shanghai, China[11], Iran [12]and Jimma[24].Studies have shown that unemployed persons were found to have higher stigma [29-31].They also have less self-tolerant and resistant to stigma. As a result patients face problems related to employment opportunities[32-34], and less likely to apply for jobs because they were preoccupied with stigma for unable to achieve their jobs[35].

Participants who could not read and write were 3.34 times more likely to experience internalized stigma compared with college and above educational level. This is also supported by studies across 13 European countries[10],Shanghai, China[11], Iran[12]and Turkey[9].The possible reason might be, high level of education may protect people not to apply the devaluing judgments to them and literacy may increase the possibility of utilizing multiple sources of information to increase one's knowledge about mental illness. The other possible reason might be those who could not read and write may have a traditional explanation for the causation of their mental illness. People with mental illness who have a traditional or supernatural explanation as the cause for mental illness might have increased risk of internalized stigma[24].

The present study shows that internalized stigma was 2.6 times higher among participants with ≥4 hospitalization in the past. This is supported by the study conducted in India[14].Repeated hospitalization in the past might show the seriousness of the patients' symptom that easily seen by the public and exposed the patient to public stigma. Repeated absent from social situations because of frequent hospitalization makes the patients easily stigmatized.

Regarding social support, the odds of developing internalized stigma was 5.3 times higher among patients with poor social support compared to strong social support. Social support may moderate the relationship between stigmatization and self-esteem and self-stigmatization itself could delay the formation and beneficial consequences of constructive peer relationships. Patients who have no social support may not get, delay or discontinuing their treatment. This is consistent with other study[17].

Concerned self-esteem, patients who had low self-esteem were 2.4 times more likely to develop internalized stigma than patients with high self-esteem. The inverse relationship between self - esteem and internalized stigma was reported in previous studies on mental illness [36-39]. Studies also reported that there were strong association between internalized stigma and self - esteem among patients with severe mental illness because low self- esteem reduces the patient's ability of stigma resistance which leads to high internalized stigma[36].

Limitation of the study

The cross-sectional design of the study prevented us from concluding the casual relationships of the associations we found.

Social desirability and recall bias might also be the other limitations. Since the data collection method was a face-to-face interview which might lead individuals to respond in socially acceptable ways during the process.

The findings of this study cannot be generalized to patients in other health facilities.

Conclusion

In the current study, more than one-fourth of the sample experienced high internalized stigma. Unemployment, low educational status, ≥4 time's hospitalization, poor social support and low self-esteem had a significant association with internalized stigma among bipolar patients. Thus, stigma reduction program focusing on improving the self-esteem and psychological health of patients to increase their stigma resistance for counteracting effects of internalized stigma and expanding social support were better to be implemented by stakeholders for patients with bipolar disorder.

List of abbreviations

AMSH: Amanuel Mental Specialized Hospital, AOR=Adjusted Odds Ratio, BD: Bipolar Disorder, CI: Confidence Interval, COR=Crud Odds Ratio, ISMI: Internalized Stigma of Mental Illness, OPD: Out Patient Department, WHO: World Health Organization.

Acknowledgment

The authors acknowledge the University of Gondar and Amanuel Mental Specialized Hospital for funding the study. We extend our gratitude to data collectors, supervisors and study participants for their time and effort.

Declarations

Ethical approval and consent to participation

Approval was obtained from the joint Ethical Review Committees of the University of Gondar and Amanuel mental specialized hospital. We received written informed consent from study participants after explaining the purpose of the study. Confidentiality was maintained by omitting personal identifiers.

Authors' contribution*:* NA developed the proposal, supervised the data collection, analyzed the data and wrote the draft manuscript. BW,TE revised the proposal, checked the data analysis. SS, DA revised the proposal, check data analysis, revised and approved the manuscript.

Funding*:* University of Gondar and Amanuel mental specialized hospital was funding this study

Consent for publication

Not applicable

Data Availability

All the data are included in the manuscript and no additional data available.

Competing interest

The authors declare that they have no competing interests

References

1. Bobak M, Powles J: **Poverty and non-communicable diseases in central and eastern Europe, with implications for surveillance. A report for the Non-Communicable Diseases and Mental Health Cluster, WHO, Geneva. Geneva: Word Health Organisation, and London: University College London**. 2001.
2. Scheyett A: **The mark of madness: Stigma, serious mental illnesses and social work**. *Social Work in Mental Health* 2005, **3**(4):79-97.
3. Corrigan PW, Kerr A, Knudsen L: **The stigma of mental illness: Explanatory models and methods for change**. *Applied and Preventive Psychology* 2005, **11**(3):179-190.
4. Ritsher JB, Otilingam PG, Grajales M: **Internalized stigma of mental illness: psychometric properties of a new measure**. *Psychiatry research* 2003, **121**(1):31-49.
5. Corrigan PW, Watson AC, Barr L: **The self–stigma of mental illness: Implications for self–esteem and self–efficacy**. *Journal of social and clinical psychology* 2006, **25**(8):875-884.
6. Goodwin FK, Jamison KR: **Manic-depressive illness: bipolar disorders and recurrent depression**, vol. 2: Oxford University Press; 2007.
7. Ferrari AJ, Stockings E, Khoo JP, Erskine HE, Degenhardt L, Vos T, Whiteford HAJBd: **The prevalence and burden of bipolar disorder: findings from the Global Burden of Disease Study 2013**. 2016, **18**(5):440-450.

8. Murray CJ, Lopez AD: **Evidence-based health policy--lessons from the Global Burden of Disease Study**. *Science* 1996, **274**(5288):740-743.
9. Sarısoy G, Kaçar ÖF, Pazvantoğlu O, Korkmaz IZ, Öztürk A, Akkaya D, Yılmaz S, Böke Ö, Sahin ARJCp: **Internalized stigma and intimate relations in bipolar and schizophrenic patients: A comparative study**. 2013, **54**(6):665-672.
10. Brohan E, Gauci D, Sartorius N, Thornicroft G, disorders GESGJJoa: **Self-stigma, empowerment and perceived discrimination among people with bipolar disorder or depression in 13 European countries: The GAMIAN–Europe study**. 2011, **129**(1-3):56-63.
11. WU Z-g, YUAN C-m, WANG Z, HUANG J, LI Z-z, WANG Y, ZHANG C, FANG Y-rJJoSJU: **Self-stigma in patients with mood disorders and its related factors [J]**. 2011, **11**.
12. Sadighi G, Khodaei MR, Fadaie F, Mirabzadeh A, Sadighi AJIRJ: **Self stigma among people with bipolar-I disorder in Iran**. 2015, **13**(1):32-28.
13. Ibrahim AW, Mukhtar YM, Sadique PK, Tahir BM, Olabisi AM, Bukar RI, Abba WM, Abayomi OBJINDJ: **A facility-based assessment of internalized stigma among patients with severe mental illnesses in Maiduguri, North-Eastern Nigeria**. 2016:1-11.
14. James TT, Kutty VRJAPJoPH: **Assessment of internalized stigma among patients with mental disorders in Thiruvananthapuram district, Kerala, India**. 2015, **27**(4):439-449.
15. Ritsher JB, Otilingam PG, Grajales MJPr: **Internalized stigma of mental illness: psychometric properties of a new measure**. 2003, **121**(1):31-49.
16. West ML, Yanos PT, Smith SM, Roe D, Lysaker PHJSr, action: **Prevalence of internalized stigma among persons with severe mental illness**. 2011, **1**(1):3.
17. Adewuya AO, Owoeye AO, Erinfolami A, Ola BAJIJoSP: **Correlates of self-stigma among outpatients with mental illness in Lagos, Nigeria**. 2011, **57**(4):418-427.
18. Ritsher JB, Phelan JC: **Internalized stigma predicts erosion of morale among psychiatric outpatients**. *Psychiatry research* 2004, **129**(3):257-265.
19. Rusch LC, Kanter JW, Manos RC, Weeks CE: **Depression stigma in a predominantly low income African American sample with elevated depressive symptoms**. *The Journal of nervous and mental disease* 2008, **196**(12):919-922.
20. Manos RC, Rusch LC, Kanter JW, Clifford LM: **Depression self-stigma as a mediator of the relationship between depression severity and avoidance**. *Journal of Social and Clinical Psychology* 2009, **28**(9):1128-1143.
21. Cooper AE, Corrigan PW, Watson AC: **Mental illness stigma and care seeking**. *The Journal of nervous and mental disease* 2003, **191**(5):339-341.
22. Corrigan PW, Watson AC: **The paradox of self-stigma and mental illness**. *Clinical Psychology: Science and Practice* 2002, **9**(1):35-53.
23. Ustündağ M, Kesebir SJTPD: **Internalized stigmatization in bipolar patients: relationship with clinical properties, quality of life and treatment compliance**. 2013, **24**(4):231-239.
24. Girma E, Tesfaye M, Froeschl G, Möller-Leimkühler AM, Dehning S, Müller NJIjomhs: **Facility based cross-sectional study of self stigma among people with mental illness: towards patient empowerment approach**. 2013, **7**(1):21.
25. Serafini G, Pompili M, Haghighat R, Pucci D, Pastina M, Lester D, Angeletti G, Tatarelli R, Girardi PJJop, nursing mh: **Stigmatization of schizophrenia as perceived by nurses, medical doctors, medical students and patients**. 2011, **18**(7):576-585.
26. Kamaradova D, Latalova K, Prasko J, Kubinek R, Vrbova K, Mainerova B, Cinculova A, Ociskova M, Holubova M, Smoldasova JJPp *et al*: **Connection between self-stigma, adherence to treatment, and discontinuation of medication**. 2016, **10**:1289.
27. Asnakew S, Shumet S, Ginbare W, Legas G, Haile KJBo: **Prevalence of post-traumatic stress disorder and associated factors among Koshe landslide survivors, Addis Ababa, Ethiopia: a community-based, cross-sectional study**. 2019, **9**(6):e028550.

28. Robins RW, Hendin HM, Trzesniewski KH: **Measuring global self-esteem: Construct validation of a single-item measure and the Rosenberg Self-Esteem Scale**. *Personality and social psychology bulletin* 2001, **27**(2):151-161.
29. Alonso J, Buron A, Rojas-Farreras S, De Graaf R, Haro JM, De Girolamo G, Bruffaerts R, Kovess V, Matschinger H, Vilagut G: **Perceived stigma among individuals with common mental disorders**. *Journal of affective disorders* 2009, **118**(1-3):180-186.
30. Angermeyer MC: **The stigma of mental illness from the patient's view--an overview**. *Psychiatrische Praxis* 2003, **30**(7):358-366.
31. Corrigan P, Thompson V, Lambert D, Sangster Y, Noel JG, Campbell J: **Perceptions of discrimination among persons with serious mental illness**. *Psychiatric Services* 2003, **54**(8):1105-1110.
32. Van Brakel WH: **Measuring health-related stigma—a literature review**. *Psychology, health & medicine* 2006, **11**(3):307-334.
33. Roeloffs C, Sherbourne C, Unützer J, Fink A, Tang L, Wells KB: **Stigma and depression among primary care patients**. *General hospital psychiatry* 2003, **25**(5):311-315.
34. Wahl OF: **Mental health consumers' experience of stigma**. *Schizophrenia bulletin* 1999, **25**(3):467-478.
35. Loganathan S, Murthy SR: **Experiences of stigma and discrimination endured by people suffering from schizophrenia**. *Indian Journal of Psychiatry* 2008, **50**(1):39.
36. Yanos PT, Roe D, Markus K, Lysaker PHJPs: **Pathways between internalized stigma and outcomes related to recovery in schizophrenia spectrum disorders**. 2008, **59**(12):1437-1442.
37. Mashiach-Eizenberg M, Hasson-Ohayon I, Yanos PT, Lysaker PH, Roe DJPr: **Internalized stigma and quality of life among persons with severe mental illness: The mediating roles of self-esteem and hope**. 2013, **208**(1):15-20.
38. Tang I-C, Wu H-CJPq: **Quality of life and self-stigma in individuals with schizophrenia**. 2012, **83**(4):497-507.
39. Kranke DA, Floersch J, Kranke BO, Munson MRJPS: **A qualitative investigation of self-stigma among adolescents taking psychiatric medication**. 2011, **62**(8):893-899.

STROBE Statement—Checklist of items that should be included in reports of ***cross-sectional studies***

	Item No	Recommendation
Title and abstract	1	(a) Indicated in page- 1
		(b) abstract is indicated in page 2
Introduction		
Background/rationale	2	Explained page -3 of the introduction section starting from reference 26 to objective
Objectives	3	Stated in page-3
Methods		
Studydesign	4	page 4
Setting	5	page-4
Participants	6	(*a*) page-4
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. (Page-4-5)
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). (Page-5)
Bias	9	Describe any efforts to address potential sources of bias-to minimize (we were focusing data collectors training how to interview and select study participants. We used systematic sampling to select and then interview.This description is sated under data sources and measurement –first paragraph on page-5
Study size	10	Explain how the study size was arrived at(page-4)
Quantitativevariables	11	Explain how quantitative variables were handled in the analysis. (page-5-data processing and analysis)
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding(page-5- using multivariate analysis)
		(b) Describe any methods used to examine subgroups and interactions(no sub group)
		(c) Explain how missing data were addressed (page-5 in data processing section)
		(d) If applicable, describe analytical methods taking account of sampling strategy(no applicable)
		(e) Describe any sensitivity analyses (we did not have sensitivity analysis) but reliability-page 5 under data sources and measurement
Results		
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed (page-5-6)
		(b) Give reasons for non-participation at eachstage(some is not voluntary to participate and some discontinue the interview)-page-5
		(c) Consider use of a flow diagram(no flow chart)
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders(page 5)
		(b) Indicate number of participants with missing data for each variable of interest (page-6)
Outcome data	15*	Report numbers of outcome events or summary measure (page-9)
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included(–we mention unadjusted variables and adjusted variables with a statement-page -9 and as summary shown in page 9 and 10 with table.
		(b) Report category boundaries when continuous variables (no continuous variable

used)		translating estimates of relative risk into absolute risk for a meaningful time period
(c) If relevant, consider		(no relevancy here)
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions,and sensitivity analyses (there was no such analysis)
Discussion		
Key results	18	Summarise key results with reference to study objectives (page-10)
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or Imprecision. Discuss both direction and magnitude of any (page12)
Interpretation	20	Give acautious over all interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant (page-12)
Generalisability	21	Discuss the generalisability (external validity) of the study results(page 12)
Otherinformation		
Funding	22	Give the source of funding and the role of the funders for the present study and,if applicable, for the original study on which the present article is based (stated in the declaration section)

*Give information separately for exposed and unexposed groups.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the STROBE Initiative is available at www.strobe-statement.org.

BMJ Open

The magnitude of internalized stigma and associated factors among people with bipolar disorder at Amanuel mental specialized, hospital Addis ababa, Ethiopia: A cross-sectional study

Journal:	*BMJ Open*
Manuscript ID	bmjopen-2020-044824.R1
Article Type:	Original research
Date Submitted by the Author:	08-Feb-2021
Complete List of Authors:	Alemnew, Nigus ; Department of psychiatry W/Michele , Bethlehem; Amanuel Mental Specialized Hospital, Department of Psychiatry Angaw, Dessie ; University of Gondar College of Medicine and Health Sciences, Department of Epidemiology and Biostatistics Ergete, Temesgen ; Debre Berhan University, Department of Psychiatry shumet, shegaye; University of Gondar College of Medicine and Health Sciences, Department of Psychiatry
Primary Subject Heading:	Mental health
Secondary Subject Heading:	Epidemiology, Global health, Health policy, Public health, Research methods
Keywords:	Adult psychiatry < PSYCHIATRY, Depression & mood disorders < PSYCHIATRY, Anxiety disorders < PSYCHIATRY

I, the Submitting Author has the right to grant and does grant on behalf of all authors of the Work (as defined in the below author licence), an exclusive licence and/or a non-exclusive licence for contributions from authors who are: i) UK Crown employees; ii) where BMJ has agreed a CC-BY licence shall apply, and/or iii) in accordance with the terms applicable for US Federal Government officers or employees acting as part of their official duties; on a worldwide, perpetual, irrevocable, royalty-free basis to BMJ Publishing Group Ltd ("BMJ") its licensees and where the relevant Journal is co-owned by BMJ to the co-owners of the Journal, to publish the Work in this journal and any other BMJ products and to exploit all rights, as set out in our licence.

The Submitting Author accepts and understands that any supply made under these terms is made by BMJ to the Submitting Author unless you are acting as an employee on behalf of your employer or a postgraduate student of an affiliated institution which is paying any applicable article publishing charge ("APC") for Open Access articles. Where the Submitting Author wishes to make the Work available on an Open Access basis (and intends to pay the relevant APC), the terms of reuse of such Open Access shall be governed by a Creative Commons licence – details of these licences and which Creative Commons licence will apply to this Work are set out in our licence referred to above.

Other than as permitted in any relevant BMJ Author's Self Archiving Policies, I confirm this Work has not been accepted for publication elsewhere, is not being considered for publication elsewhere and does not duplicate material already published. I confirm all authors consent to publication of this Work and authorise the granting of this licence.

The magnitude of internalized stigma and associated factors among people with bipolar disorder at Amanuel mental specialized, hospital Addis Ababa, Ethiopia: A cross-sectional study

Nigus Alemnew[1], Bethlehem W/Michele[3], DessieAbebaw[4], Temesgen Ergete,[5]Shegaye Shumet*[2]

1 Department of Psychiatry, Debre Berhan University, Debre Berhan, Ethiopia:
2 Department of Psychiatry, College of Medicine and Health Sciences, University of Gondar, Gondar, Ethiopia.
3 Department of psychiatry, Amanuel Mental Specialized Hospital, Addis Ababa, Ethiopia:
4 Department of Epidemiology and Biostatics, College of Medicine and Health Sciences, University of Gondar, Gondar, Ethiopia
5 Department of Psychiatry, College of Medicine and Health Sciences, Bahir Dar University, Bahir Dare, Ethiopia.

E-mails

NA=nigusalemnew2014@gmail.com

SS=shumetshegaye@yahoo.com

BW=Bethwolde@gmail.com

DA=dessieabebaw96@gmail.com

TE= Tomtemesgen@gmail.com

*Corresponding Author. Shegaye Shumet

Department of Psychiatry, University of Gondar, Gondar, Ethiopia

. Tel.:+251918045505/+251967148362 Email: shumetshegaye@yahoo.com , P.O.BOX:196

Abstract

Objectives: To assess the magnitude of internalized stigma and associated factors among bipolar patients attending the outpatient department of Amanuel Mental Specialized Hospital, Addis Ababa, Ethiopia.

Design: Institution based cross-sectional study design.

Setting: Amanuel Mental Specialized Hospital, Addis Ababa, Ethiopia.

Participants: we recruited about 418 participants using systematic sampling technique for an interview during the study period.

Measurement: Data were collected by face-to-face interviews. Internalized stigma of mental illness scale was used to measure internalized stigma. The Rosenberg self- esteem scale and the Oslo-3 social support were instruments used to assess the associated factors. Bivariate and multivariate logistic regressions were performed to identify factors associated with the outcome variable. Odds ratio with 95% confidence interval were computed to determine the level of significance.

Results: The magnitude of internalized stigma was 24.9 %(95%CI: 21.2-28.9%). In the multivariate analysis, unemployed (Adjusted odd ratio (AOR)=2.3,95% CI :1.0,5.0), unable to read and write(AOR=3.3,95%CI:1.05,10.7),poor social support(AOR= 5.3,CI:1.9,15.0), ≥4previous hospitalization due to bipolar disorder(AOR= 2.6,95% CI:1.1,6.1) and low self-esteem(AOR= 2.4,95%CI:1.1,5.1) had a significant association with internalized stigma.

Conclusions: One in four bipolar patients reported high internalized stigma. Unemployment, low educational status, low self-esteem, poor social support and more than or equal to four hospitalization had significantly associated with internalized stigma. Thus, stigma reduction program is essential by focusing on self-esteem improvement and psychological health of patients to increase their stigma resistance for counteracting effects of internalized stigma.

Strengths and limitations of the study

- The limitation of the study emanates from its cross-sectional design, which might not show causal relationship.
- Social and recall biases might have occurred among patients while interviewing the questionnaire.

- Internalized stigma scale can be used for future studies because it had good internal consistency in this study.

Key words: Internalized Stigma, Bipolar disorder, Ethiopia

Introduction

The World Health Organization (WHO)considers stigma about mental illness as a global health problem since it has a direct effect on the overall quality of life of people with mental illness [1, 2]. Mental health research identified different interrelated levels of stigma, including internalized stigma[3]. Internalized stigma is a phenomenon of accepting and incorporating a negative stereotype about mental illness in to the identity of people [4, 5].

Bipolar disorder is one of the most severe mental illnesses, which is characterized by fluctuating periods of mania and depression. In severe episodes of the disorder, it contains delusions and hallucinations[6]. When the onset of the illness is early in age, severe and chronic, Its disability impact is high [7]. It is the sixth cause of disability[8]. Studies in developed and developing countries showed that 18.5% to 46% of bipolar patients have internalized stigma [9-16]. For example, the magnitude of internalized stigma has been 38.7% in Kerala, India[14],21.6 %, and 33.7% in Nigeria[13, 17]. Because of internalized stigma, patients might have a reduction of moral, increased avoidance behaviors, and reduced social functioning [18-20]. It also has an impacts on individual's decision to seek treatment and create similar barriers to life opportunities and achievements [21, 22]. Moderating and risk factors for internalized stigma among bipolar patients have been sex, middle age, low level of education, unemployment, severity of depression, perceived social support, family history of mental illness, number of previous hospitalization, longer duration of illness, and low-self esteem[9-11, 14, 16, 17, 23, 24]. Patients belief about the cause the illness is more frequently associated with stigmatized attitude and result in less likely to seek the recommended treatment[25]. Patients with high internalized stigma have lower adherence to their treatment and the more severe the condition[26].Many bipolar patients discontinue their prescribed medications and re-hospitalized due to relapse of the illness, which results in a high cost for the health care system. Even though internalized stigma is high and has different impacts in bipolar patients, there is no study which shows the magnitude of internalized stigma among patients diagnosed with bipolar disorder in Ethiopia. Therefore; determining the magnitude and associated factors of internalized stigma of patients diagnosed with bipolar disorder is important for controlling bipolar symptoms, decrease the burden of

relapse and regain basic life functioning which all contributes for improving patients' quality of life.

Objective: The aim of this study was to assess the magnitude of internalized stigma and associated factors among people with bipolar disorder at Amanuel Mental Specialized, hospital Addis Ababa, Ethiopia, 2016.

Methods and materials

Study setting and populations: An institution based cross-sectional study design was conducted among patients diagnosed with bipolar disorder who had follow ups at Amanuel Mental Specialized hospital (AMSH) in Addis Ababa, Ethiopia between May and June 2016. AMSH is the first hospital started in mental health services in Ethiopia, and give treatment service for patients coming with different mental health problems in the outpatient and inpatient setting of the hospital.

Sample size determination and technique

We determined the sample size by using the single population proportion formula with the assumptions of 50% prevalence of internalized stigma, 0.5P, 1.96Z(standard normal distribution), 95% CI, α=0.05, and a 10% non-response rate. Accordingly, a representative/probabilistic sample was calculated to be 423. We used systematic sampling technique to select 423 participants with every two sampling intervals. After estimating the interval, from which patient shall begin the interview? Is from the first patient or the second patient who visited the out patients to prevent selection bias? Therefore, the first case was selected randomly (lottery method) from the 1stand 2ndpatients who were visiting the outpatient and continued every two interval until we got the calculated sample size. The study included participants with the diagnosis of bipolar disorder, and aged 18 years and above during data collection time. Participants' with positive symptoms, unable to communicate and hearing problem were excluded**.**

Study variables

The dependent variable was internalized stigma measured by internalized stigma of mental illness (ISMI).We measured internalized stigma as a dichotomous variable (yes/no).Independent variables were socio-demographic factors (age, sex, ethnicity, religion, marital status, educational status and occupational status), psychosocial factors(self-esteem, social support),and

clinical factors(age at onset of the illness, number of episode, duration of treatment, umber of previous hospitalization, and type of episode).

Data sources and measurement

Data were collected by face-to-face interviews using a semi-structured questionnaire by six trained data collectors (mental health professionals) for a month. The interviews were conducted after the patients were seen by their physician. The questionnaire was designed in English and was translated to Amharic and back to English to maintain consistency. The Amharic version of the questionnaire was used to the interview. Data collectors were trained on introduction to bipolar disorder and stigma, research methods, interviewing skills, sampling and recruitment and ethical aspects of the study. Prior to the actual data collection, the Amharic version of the questionnaire was pretested among bipolar patients and some modification was done.

Internalized stigma was measured using the internalized stigma of mental illness (ISMI) scale. The scale has 29 items divided in five domains, namely alienation, stereotype endorsement, discrimination experience, social withdrawal and stigma resistance. ISMI had a likert response option ranging from (1) " strongly disagree" to (4) "strongly agree" and the total score was calculated by summing the 29 items[4] and a cut-off ≥2.5, that is, study participants had internalized stigma [15].The tool was adapted from the Jimma, Ethiopia study[24]. It showed a high internal consistency, and reliability (Kappa=0.89). We conducted a reliability analysis for ISMI questionnaire (Amharic version) and showed that it had a high score (Cronbach α= 0.93).

Social support was measured using the Oslo 3-items social support scale with scores ranging from 3 to 14: 3–8=poor social support; 9–11=intermediate social support; and 12–14=strong social support[27].

Self-esteem was assessed by the Rosenberg self- esteem scale and categorized into low and high self-esteem score[28].

Items on socio-demographic factors (age, sex, ethnicity, religion, marital status, educational status and occupational status) were adopted from a variety of literatures.

Data processing and analysis

All collected data were checked for completeness and consistency and entered into EPI info version 7 and then exported to SPSS for windows version 20 for analysis. We computed descriptive, bivariate and multivariate logistic regression analyses to see the frequency distribution and to test the association between independent and dependent variables,

respectively. Factors associated with internal stigma were selected during the bivariate analysis with a p-value <0.2 for further analysis in the multivariable logistic regression analysis. In the multivariable logistic regression analysis, variables with P-value less than 0.05 at 95% confidence interval with adjusted odds ratio were considered as statistically significant.

Ethical consideration

Approval was obtained from the joint Ethical Review Committees of the University of Gondar and Amanuel mental specialized hospital. The approval number was **psy/201/08**. We received written informed consent from study participants after explaining the purpose of the study. Confidentiality was maintained by omitting personal identifiers.

Patient and public involvement

In this study, participants were clinically diagnosed with bipolar disorder and had follow-ups at the outpatient departments of the hospital. Patients who had one or more visits were included and acutely disturbed and unable to communicate were excluded. Our study participants were also not involved in the study design and recruitment. The results of this study will help to the hospital clinicians to give an attention for stigma reduction.

Results

A total of 418 participants took part with response rate of 98.8%. From five participants,4 were not voluntary to participate and one discontinues the interview. The mean (SD) age of the respondents was 34.29 (10.4) years, and 164(39.2%) were in the age range of 25-34 years; 216(51.7%) were male; 223(53.3%) were single, and 140 (33.5%) were secondary school. The majority, 311(74.4%) of the participants were living in urban. According to world development report 2010 180(43.1%) were above poverty bench mark **(Table 1).**

Table 1: Frequency distribution and percentage of bipolar patients on follow ups at Amanuel Mental specialized Hospital, Addis Ababa, Ethiopia, 2016(n=418)

Variables	Category	Frequency	Percent
Age	18-24	66	15.8
	25-34	164	39.2
	35-44	120	28.7
	≥44	68	16.3
Sex	Male	216	51.7
	Female	202	48.3
Religion	Orthodox	230	55.0

	Muslim	94	22.5
	Protestant	82	19.6
	Others	12	2.9
Marital status	Single	223	53.3
	Divorced, widowed	65	15.6
	Married	130	31.1
Ethnicity	Amhara	151	36.1
	Oromo	120	28.7
	Gurage	75	17.9
	Other	72	17.2
Educational status	Unable to read and write	62	14.8
	Primary	103	24.6
	Secondary	140	33.5
	College and above	113	27.0
Residency	Rural	107	25.6
	Urban	311	74.4
Currently working	Yes	277	66.27
	No	141	33.73
Type of occupation	Government employ	58	13.9
	Farmer	45	10.8
	Private enterprise	121	28.9
	other	53	12.7
Household monthly income	Extreme poverty	113	27.0
	Poverty bench mark	125	29.9
	Above poverty bench mark	180	43.1

Regarding the clinical characteristics of participants, the majority, 255(61.0%) were developing the disorder before 25 years of age, and157 (37.6%) had the illness for more than 10 years. Of the respondents, 220(52.6%) had treatment duration of less or equal to six years, and 251(60%) of them had more than 2 episodes. In terms of previous hospitalization, 218(52.2%) of the patient had hospitalized because of the disorder.

A small number, 45(10.8%) of the participants were hospitalized ≥ 4 times previously, and 310(74.2%) of the participants had a manic episode. About 190 (45.5%) of the participants ever had history of traditional treatment/traditional medicine for their illness; 119 (28.5%) had family

history of mental illness, and 144(34.4%) had suicidal attempt before. Out of the total 418 participants, more than half (55.7%) ever had discontinue their medication and of whom 25(10.7%) discontinue because of perceived stigma. Concerning psychosocial characteristics, 176(42.1%) of the participant had poor social support. and133 (31.8%) had low self-esteem **(Table 2).**

Table 2: Frequency and percentage of clinical and psychosocial factors among people with bipolar disorder at Amanuel mental specialized hospital, Addis Ababa, Ethiopia, 2016 (n=418).

Variables	Category	Frequency	Percent
Age at onset of illness	≤25years	255	61.0
	>25 years	163	39.0
Duration of illness	<5 years	147	35.2
	5-10years	114	27.3
	>10 years	157	37.6
Treatment duration	≤6years	220	52.6
	>6years	198	47.4
Number of episodes	<2	167	40.0
	≥2	251	60.0
Presence of hospitalization	yes	218	52.2
	no	200	47.8
Number of hospitalization	<4	175	41.9
	≥4	45	10.8
Current episode	Manic	310	74.2
	Depressive	108	25.8
Ever had traditional treatment	Yes	190	45.5
	No	228	54.5
Family history of mental illness	Yes	119	28.5
	No	299	71.5
Previous suicidal attempt	Yes	144	34.4
	No	274	65.6
Ever had discontinuation of medication	Yes	233	55.7
	No	185	44.3
Contribution of stigma for discontinuation of medication	Yes	25	5.9
	No	208	49.8
Social support	Poor	176	42.1
	Intermediate	148	35.4
	Strong	94	22.5

Self esteem	Low self esteem	133	31.8
	High self esteem	285	68.2

Magnitude of internalized stigma

The prevalence of internalized stigma among participants was 24.9 % (95% CI: 21.2, 28.9%). Regarding the subscales of ISMI, 151 (36.1%), 71 (17.0%), 154 (36.8%), and 109 (26.1%) of the respondents had internalized stigma score in alienation, stereotype endorsement, discrimination experience, and social withdrawal, respectively.

Factors associated with internalized stigma

To determine the association of independent variables with internalized stigma, bivariate and multivariate binary logistic regression analyses were carried out. In the bivariate analysis, factors including current work status, educational status, residence and marital status, ever had traditional treatment, duration of illness, number of previous hospitalization, number of episode and type of current episode, social support and low self-esteem were significantly associated with internalized stigma at a P-value less than 0.2.These factors were entered into the multivariable logistic regression model to control confounding effects.

The result of the multivariate analysis showed that unemployed (AOR=2.3,95% CI :1.0,5.0), unable to read and write (AOR=3.3,95%CI:1.0,10.7),poor social support(AOR= 5.3,CI:1.9,15.0),previous hospitalization(≥4 times) (AOR= 2.6,95%CI:1.1,6.1), and low self-esteem(AOR= 2.4,95%CI:1.1,5.1)were significantly associated with internalized stigma**(Table-3).**

Table 3 : Bivarate and multivariate analysis of internalized stigma and explanatory variables among people with bipolar disorder at the outpatient department of AMSH, Addis Ababa, Ethiopia, 2016(n=418).

variables	Internalized stigma		COR 95%CI	AOR95%CI	
	high	low			P-value
Current working status					
Yes	55	209	1.0	1.0	
No	49	105	1.8(1.1,2.8)	2.3(1.0,5.1)*	0.007
Residence					
Rural	32	75	1.4(0.9,2.3)	1.1(0.5,2.5)	0.244
Urban	72	239	1.0	1.0	
Marital status					
Single	64	159	1.5(0.9,2.6)	1.86(0.73,4.75)	0.356
Divorced or widowed	13	52	1.0(0.5,2.0)	0.4(0.1,1.3)	0.871

Married	27	103	1.0	1.0	
Ever had traditional Rx					
Yes	53	137	1.3(0.9,2.1)	0.9(0.4,1.8)	0.532
No	51	177	1.0	1.0	
Educational status					
Unable to read and write	24	38	2.2(1.1,4.4)	3.3(1.1,10.7)*	0.016
Primary	24	79	1.1(0.6,2.0)	1.6(0.6,4.3)	0.913
Secondary	31	109	1.0(0.6,1.8)	0.8(0.3,2.2)	0.238
College and above	25	88	1.0	1.0	
current episode					
Manic	84	226	1.0	1.0	
depressive	20	88	0.6(0.4,1.1)	1.3(0.4,3.9)	0.332
Number of episode					
<2 years of the illness	33	134	1.0	1.0	
≥2 years of the illness	71	180	1.6(1.0,2.6)	1.0(0.4,2.7)	0.894
Duration of illness					
<5 years	29	118	1.0	1.0	
5-10 years	23	91	1.0(0.6,1.9)	0.8(0.3,2.2)	0.901
>10 years	52	105	2.0(1.2,3.4)	2.1(0.8,5.5)	0.143
Self esteem					
Low	45	88	2.0(1.2,3.1)	2.3(1.1,5.1)*	0.001
High	59	226	1.0	1.0	
previous hospitalization					
<4	38	137	1.0	1.0	
≥4	20	25	2.9(1.5,5.8)	2.6(1.1,6.1)*	0.031
Social support					
Poor	67	109	2.8(1.5,5.1)	5.3(1.9,15.0)**	0.002
Intermediate	20	128	0.7(0.4,1.4)	1.1(0.4,3.2)	0.938
strong	17	77	1.0	1.0	

*=P < 0.05, **= P< 0.01), Hosmer and lemeshow test = 0.78. COR=crud odds ratio, AOR=adjusted odds ratio

DISCUSSION

This study found that a number of patients were experiencing internalized stigma. Some 24.9% of people with the disorder had internalized stigma according to internalized stigma of mental illness scale. Our finding was consistent with reports of studies across 13 Europe countries,21.7%[10], Shanghai,China 24.2%[11],Iran, 26.7%[12], in USA,28%[15].

Conversely, this finding was lower than33.7% noted in Nigeria[13], 38.7% in India[14],46% in Turkey[23], and 36% in USA[16].The variation might be due to the difference in sample size and study subjects. In Turkey they used only 100 participants and in USA patients with schizophrenia and other psychotic disorders included in addition to bipolar disorder patients. The inclusion of patients' with schizophrenia disorder in that study may increase internalized stigma because of the continuous nature of the illness. The other variation might be, in our study most of

the participants were from an urban setting and having college and above educational level which in turn reduces level of internalized stigma.

On the other hand, our finding was higher than other findings in Turkey with 18.5%[9].The discrepancy might be due to different study design and study subjects. In Turkey they used comparative cross-sectional study and all the participants were literate. This is due to the fact that those patients with lower educational status may have more internalized stigma.

The odds of internalized stigma among unemployed were 2.3times higher than employed participants. This is consistent with the study conducted across 13 Europe countries[10], Shanghai, China[11], Iran [12]and Jimma[24].Studies have shown that unemployed persons were found to have higher stigma [29-31].They also have less self-tolerant and resistant to stigma. As a result patients face problems related to employment opportunities[32-34], and less likely to apply for jobs because they were preoccupied with stigma for unable to achieve their jobs[35].

Participants who could not read and write were 3.34times more likely to experience internalized stigma compared with college and above educational level. This is also supported by studies across 13 European countries[10],Shanghai, China[11], Iran[12]and Turkey[9].The possible reason might be, high level of education may protect people not to apply the devaluing judgments to them and literacy may increase the possibility of utilizing multiple sources of information to increase one's knowledge about mental illness. The other possible reason might be those who could not read and write may have a traditional explanation for the causation of their mental illness. People with mental illness who have a traditional or supernatural explanation as the cause for mental illness might have increased risk of internalized stigma[24].

The present study shows that internalized stigma was 2.6 times higher among participants with ≥4 hospitalization in the past. This is supported by the study conducted in India[14].Repeated hospitalization in the past might show the seriousness of the patients' symptom that easily seen by the public and exposed the patient to public stigma. Repeated absent from social situations because of frequent hospitalization makes the patients easily stigmatized.

Regarding social support, the odds of developing internalized stigma was 5.3 times higher among patients with poor social support compared to strong social support. Social support may moderate the relationship between stigmatization and self-esteem and self-stigmatization itself could delay the formation and beneficial consequences of constructive peer relationships. Patients who have no social support may not get, delay or discontinuing their treatment. This is consistent with other study[17].

Concerned self-esteem, patients who had low self-esteem were 2.4 times more likely to develop internalized stigma than patients with high self-esteem. The inverse relationship between self -esteem and internalized stigma was reported in previous studies on mental illness[36-39]. Studies also reported that there were strong association between internalized stigma and self -esteem among patients with severe mental illness because low self- esteem reduces the patient's ability of stigma resistance which leads to high internalized stigma[36].

Limitation of the study

The cross-sectional design of the study prevented us from concluding the casual relationships of the associations we found.

Social desirability and recall bias might also be the other limitations. Since the data collection method was a face-to-face interview which might lead individuals to respond in socially acceptable ways during the process.

The findings of this study cannot be generalized to patients in other health facilities.

The instrument internalized stigma of mental illness (ISMI) was not validated although it is widely used as a screening tool for internalized stigma in Ethiopia.

Conclusion

In the current study, more than one-fourth of the sample experienced high internalized stigma. Unemployment, low educational status, ≥4 time's hospitalization, poor social support and low self-esteem had a significant association with internalized stigma among bipolar patients. Thus, stigma reduction program focusing on improving the self-esteem and psychological health of patients to increase their stigma resistance for counteracting effects of internalized stigma and expanding social support were better to be implemented by stakeholders for patients with bipolar disorder.

List of abbreviations

AMSH: Amanuel Mental Specialized Hospital, AOR=Adjusted Odds Ratio, BD: Bipolar Disorder, CI: Confidence Interval, COR=Crud Odds Ratio, ISMI: Internalized Stigma of Mental Illness, OPD: Out Patient Department, WHO: World Health Organization.

Acknowledgment

The authors acknowledge the University of Gondar and Amanuel Mental Specialized Hospital for funding the study. We extend our gratitude to data collectors, supervisors and study participants for their time and effort.

Declarations

Ethical approval and consent to participation

Approval was obtained from the joint Ethical Review Committees of the University of Gondar and Amanuel mental specialized hospital. We received written informed consent from study participants after explaining the purpose of the study. Confidentiality was maintained by omitting personal identifiers.

Authors' contribution*:* NA developed the proposal, supervised the data collection, analyzed the data and wrote the draft manuscript. BW,TE revised the proposal, checked the data analysis. SS, DA revised the proposal, check data analysis, revised and approved the manuscript.

Funding*:* The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Consent for publication

Not applicable

Data Availability

All the data are included in the manuscript and no additional data available.

Competing interest

The authors declare that they have no competing interests

References

1. Bobak M, Powles J: **Poverty and non-communicable diseases in central and eastern Europe, with implications for surveillance. A report for the Non-Communicable Diseases and Mental Health Cluster, WHO, Geneva. Geneva: Word Health Organisation, and London: University College London**. 2001.
2. Scheyett A: **The mark of madness: Stigma, serious mental illnesses and social work**. *Social Work in Mental Health* 2005, **3**(4):79-97.
3. Corrigan PW, Kerr A, Knudsen L: **The stigma of mental illness: Explanatory models and methods for change**. *Applied and Preventive Psychology* 2005, **11**(3):179-190.
4. Ritsher JB, Otilingam PG, Grajales M: **Internalized stigma of mental illness: psychometric properties of a new measure**. *Psychiatry research* 2003, **121**(1):31-49.

5. Corrigan PW, Watson AC, Barr L: **The self–stigma of mental illness: Implications for self–esteem and self–efficacy**. *Journal of social and clinical psychology* 2006, **25**(8):875-884.
6. Goodwin FK, Jamison KR: **Manic-depressive illness: bipolar disorders and recurrent depression**, vol. 2: Oxford University Press; 2007.
7. Ferrari AJ, Stockings E, Khoo JP, Erskine HE, Degenhardt L, Vos T, Whiteford HAJBd: **The prevalence and burden of bipolar disorder: findings from the Global Burden of Disease Study 2013**. 2016, **18**(5):440-450.
8. Murray CJ, Lopez AD: **Evidence-based health policy--lessons from the Global Burden of Disease Study**. *Science* 1996, **274**(5288):740-743.
9. Sarısoy G, Kaçar ÖF, Pazvantoğlu O, Korkmaz IZ, Öztürk A, Akkaya D, Yılmaz S, Böke Ö, Sahin ARJCp: **Internalized stigma and intimate relations in bipolar and schizophrenia patients: A comparative study**. 2013, **54**(6):665-672.
10. Brohan E, Gauci D, Sartorius N, Thornicroft G, disorders GESGJJoa: **Self-stigma, empowerment and perceived discrimination among people with bipolar disorder or depression in 13 European countries: The GAMIAN–Europe study**. 2011, **129**(1-3):56-63.
11. WU Z-g, YUAN C-m, WANG Z, HUANG J, LI Z-z, WANG Y, ZHANG C, FANG Y-rJJoSJU: **Self-stigma in patients with mood disorders and its related factors [J]**. 2011, **11**.
12. Sadighi G, Khodaei MR, Fadaie F, Mirabzadeh A, Sadighi AJIRJ: **Self stigma among people with bipolar-I disorder in Iran**. 2015, **13**(1):32-28.
13. Ibrahim AW, Mukhtar YM, Sadique PK, Tahir BM, Olabisi AM, Bukar RI, Abba WM, Abayomi OBJINDJ: **A facility-based assessment of internalized stigma among patients with severe mental illnesses in Maiduguri, North-Eastern Nigeria**. 2016:1-11.
14. James TT, Kutty VRJAPJoPH: **Assessment of internalized stigma among patients with mental disorders in Thiruvananthapuram district, Kerala, India**. 2015, **27**(4):439-449.
15. Ritsher JB, Otilingam PG, Grajales MJPr: **Internalized stigma of mental illness: psychometric properties of a new measure**. 2003, **121**(1):31-49.
16. West ML, Yanos PT, Smith SM, Roe D, Lysaker PHJSr, action: **Prevalence of internalized stigma among persons with severe mental illness**. 2011, **1**(1):3.
17. Adewuya AO, Owoeye AO, Erinfolami A, Ola BAJIJoSP: **Correlates of self-stigma among outpatients with mental illness in Lagos, Nigeria**. 2011, **57**(4):418-427.
18. Ritsher JB, Phelan JC: **Internalized stigma predicts erosion of morale among psychiatric outpatients**. *Psychiatry research* 2004, **129**(3):257-265.
19. Rusch LC, Kanter JW, Manos RC, Weeks CE: **Depression stigma in a predominantly low income African American sample with elevated depressive symptoms**. *The Journal of nervous and mental disease* 2008, **196**(12):919-922.
20. Manos RC, Rusch LC, Kanter JW, Clifford LM: **Depression self-stigma as a mediator of the relationship between depression severity and avoidance**. *Journal of Social and Clinical Psychology* 2009, **28**(9):1128-1143.
21. Cooper AE, Corrigan PW, Watson AC: **Mental illness stigma and care seeking**. *The Journal of nervous and mental disease* 2003, **191**(5):339-341.
22. Corrigan PW, Watson AC: **The paradox of self-stigma and mental illness**. *Clinical Psychology: Science and Practice* 2002, **9**(1):35-53.
23. Ustündağ M, Kesebir SJTPD: **Internalized stigmatization in bipolar patients: relationship with clinical properties, quality of life and treatment compliance**. 2013, **24**(4):231-239.
24. Girma E, Tesfaye M, Froeschl G, Möller-Leimkühler AM, Dehning S, Müller NJIjomhs: **Facility based cross-sectional study of self stigma among people with mental illness: towards patient empowerment approach**. 2013, **7**(1):21.
25. Serafini G, Pompili M, Haghighat R, Pucci D, Pastina M, Lester D, Angeletti G, Tatarelli R, Girardi PJJop, nursing mh: **Stigmatization of schizophrenia as perceived by nurses, medical doctors, medical students and patients**. 2011, **18**(7):576-585.

26. Kamaradova D, Latalova K, Prasko J, Kubinek R, Vrbova K, Mainerova B, Cinculova A, Ociskova M, Holubova M, Smoldasova JJPp *et al*: **Connection between self-stigma, adherence to treatment, and discontinuation of medication**. 2016, **10**:1289.
27. Asnakew S, Shumet S, Ginbare W, Legas G, Haile KJBo: **Prevalence of post-traumatic stress disorder and associated factors among Koshe landslide survivors, Addis Ababa, Ethiopia: a community-based, cross-sectional study**. 2019, **9**(6):e028550.
28. Robins RW, Hendin HM, Trzesniewski KH: **Measuring global self-esteem: Construct validation of a single-item measure and the Rosenberg Self-Esteem Scale**. *Personality and social psychology bulletin* 2001, **27**(2):151-161.
29. Alonso J, Buron A, Rojas-Farreras S, De Graaf R, Haro JM, De Girolamo G, Bruffaerts R, Kovess V, Matschinger H, Vilagut G: **Perceived stigma among individuals with common mental disorders**. *Journal of affective disorders* 2009, **118**(1-3):180-186.
30. Angermeyer MC: **The stigma of mental illness from the patient's view--an overview**. *Psychiatrische Praxis* 2003, **30**(7):358-366.
31. Corrigan P, Thompson V, Lambert D, Sangster Y, Noel JG, Campbell J: **Perceptions of discrimination among persons with serious mental illness**. *Psychiatric Services* 2003, **54**(8):1105-1110.
32. Van Brakel WH: **Measuring health-related stigma—a literature review**. *Psychology, health & medicine* 2006, **11**(3):307-334.
33. Roeloffs C, Sherbourne C, Unützer J, Fink A, Tang L, Wells KB: **Stigma and depression among primary care patients**. *General hospital psychiatry* 2003, **25**(5):311-315.
34. Wahl OF: **Mental health consumers' experience of stigma**. *Schizophrenia bulletin* 1999, **25**(3):467-478.
35. Loganathan S, Murthy SR: **Experiences of stigma and discrimination endured by people suffering from schizophrenia**. *Indian Journal of Psychiatry* 2008, **50**(1):39.
36. Yanos PT, Roe D, Markus K, Lysaker PHJPs: **Pathways between internalized stigma and outcomes related to recovery in schizophrenia spectrum disorders**. 2008, **59**(12):1437-1442.
37. Mashiach-Eizenberg M, Hasson-Ohayon I, Yanos PT, Lysaker PH, Roe DJPr: **Internalized stigma and quality of life among persons with severe mental illness: The mediating roles of self-esteem and hope**. 2013, **208**(1):15-20.
38. Tang I-C, Wu H-CJPq: **Quality of life and self-stigma in individuals with schizophrenia**. 2012, **83**(4):497-507.
39. Kranke DA, Floersch J, Kranke BO, Munson MRJPS: **A qualitative investigation of self-stigma among adolescents taking psychiatric medication**. 2011, **62**(8):893-899.

STROBE Statement—Checklist of items that should be included in reports of ***cross-sectional studies***

	Item No	Recommendation
Title and abstract	1	(a) Indicated in page- 1
		(b) abstract is indicated in page 2
Introduction		
Background/rationale	2	Explained page -3 of the introduction section starting from reference 26 to objective
Objectives	3	Stated in page-3
Methods		
Studydesign	4	page 4
Setting	5	page-4
Participants	6	(*a*) page-4
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. (Page-4-5)
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). (Page-5)
Bias	9	Describe any efforts to address potential sources of bias-to minimize (we were focusing data collectors training how to interview and select study participants. We used systematic sampling to select and then interview.This description is sated under data sources and measurement –first paragraph on page-5
Study size	10	Explain how the study size was arrived at(page-4)
Quantitativevariables	11	Explain how quantitative variables were handled in the analysis. (page-5-data processing and analysis)
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding(page-5- using multivariate analysis)
		(b) Describe any methods used to examine subgroups and interactions(no sub group)
		(c) Explain how missing data were addressed (page-5 in data processing section)
		(d) If applicable, describe analytical methods taking account of sampling strategy(no applicable)
		(e) Describe any sensitivity analyses (we did not have sensitivity analysis) but reliability-page 5 under data sources and measurement
Results		
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed (page-5-6)
		(b) Give reasons for non-participation at eachstage(some is not voluntary to participate and some discontinue the interview)-page-5
		(c) Consider use of a flow diagram(no flow chart)
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders(page 5)
		(b) Indicate number of participants with missing data for each variable of interest (page-6)
Outcome data	15*	Report numbers of outcome events or summary measure (page-9)
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included(–we mention unadjusted variables and adjusted variables with a statement-page -9 and as summary shown in page 9 and 10 with table.
		(b) Report category boundaries when continuous variables (no continuous variable

used)		translating estimates of relative risk into absolute risk for a meaningful time period
(c) If relevant, consider		(no relevancy here)
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions,and sensitivity analyses (there was no such analysis)
Discussion		
Key results	18	Summarise key results with reference to study objectives (page-10)
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or Imprecision. Discuss both direction and magnitude of any (page12)
Interpretation	20	Give acautious over all interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant (page-12)
Generalisability	21	Discuss the generalisability (external validity) of the study results(page 12)
Otherinformation		
Funding	22	Give the source of funding and the role of the funders for the present study and,if applicable, for the original study on which the present article is based (stated in the declaration section)

*Give information separately for exposed and unexposed groups.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the STROBE Initiative is available at www.strobe-statement.org.

BMJ Open

The magnitude of internalized stigma and associated factors among people with bipolar disorder at Amanuel Mental Specialized hospital, Addis Ababa, Ethiopia: A cross-sectional study

Journal:	*BMJ Open*
Manuscript ID	bmjopen-2020-044824.R2
Article Type:	Original research
Date Submitted by the Author:	10-Mar-2021
Complete List of Authors:	Alemnew, Nigus ; Department of psychiatry W/Michele , Bethlehem; Amanuel Mental Specialized Hospital, Department of Psychiatry Angaw, Dessie ; University of Gondar College of Medicine and Health Sciences, Department of Epidemiology and Biostatistics Ergete, Temesgen ; Debre Berhan University, Department of Psychiatry shumet, shegaye; University of Gondar College of Medicine and Health Sciences, Department of Psychiatry
Primary Subject Heading:	Mental health
Secondary Subject Heading:	Epidemiology, Global health, Health policy, Public health, Research methods
Keywords:	Adult psychiatry < PSYCHIATRY, Depression & mood disorders < PSYCHIATRY, Anxiety disorders < PSYCHIATRY

I, the Submitting Author has the right to grant and does grant on behalf of all authors of the Work (as defined in the below author licence), an exclusive licence and/or a non-exclusive licence for contributions from authors who are: i) UK Crown employees; ii) where BMJ has agreed a CC-BY licence shall apply, and/or iii) in accordance with the terms applicable for US Federal Government officers or employees acting as part of their official duties; on a worldwide, perpetual, irrevocable, royalty-free basis to BMJ Publishing Group Ltd ("BMJ") its licensees and where the relevant Journal is co-owned by BMJ to the co-owners of the Journal, to publish the Work in this journal and any other BMJ products and to exploit all rights, as set out in our licence.

The Submitting Author accepts and understands that any supply made under these terms is made by BMJ to the Submitting Author unless you are acting as an employee on behalf of your employer or a postgraduate student of an affiliated institution which is paying any applicable article publishing charge ("APC") for Open Access articles. Where the Submitting Author wishes to make the Work available on an Open Access basis (and intends to pay the relevant APC), the terms of reuse of such Open Access shall be governed by a Creative Commons licence – details of these licences and which Creative Commons licence will apply to this Work are set out in our licence referred to above.

Other than as permitted in any relevant BMJ Author's Self Archiving Policies, I confirm this Work has not been accepted for publication elsewhere, is not being considered for publication elsewhere and does not duplicate material already published. I confirm all authors consent to publication of this Work and authorise the granting of this licence.

The magnitude of internalized stigma and associated factors among people with bipolar disorder at Amanuel Mental Specialized hospital, Addis Ababa, Ethiopia: A cross-sectional study

Nigus Alemnew[1], Bethlehem W/Michele[3], Dessie Angaw[4], Temesgen Ergete,[5]Shegaye Shumet*[2]

1 Department of Psychiatry, Debre Berhan University, Debre Berhan, Ethiopia:

2 Department of Psychiatry, College of Medicine and Health Sciences, University of Gondar, Gondar, Ethiopia.

3 Department of psychiatry, Amanuel Mental Specialized Hospital, Addis Ababa, Ethiopia:

4 Department of Epidemiology and Biostatics, College of Medicine and Health Sciences, University of Gondar, Gondar, Ethiopia

5 Department of Psychiatry, College of Medicine and Health Sciences, Bahir Dar University, Bahir Dare, Ethiopia.

E-mails

NA=nigusalemnew2014@gmail.com

SS=shumetshegaye@yahoo.com

BW=Bethwolde@gmail.com

DA=dessieabebaw96@gmail.com

TE= Tomtemesgen@gmail.com

*Corresponding Author. Shegaye Shumet

Department of Psychiatry, University of Gondar, Gondar, Ethiopia

. Tel.:+251918045505/+251967148362 Email: shumetshegaye@yahoo.com , P.O.BOX:196

Abstract

Objectives: To assess the magnitude of internalized stigma and associated factors among patients with bipolar disorder attending the outpatient department of Amanuel Mental Specialized Hospital, Addis Ababa, Ethiopia.

Design: Institution based cross-sectional study design.

Setting: Amanuel Mental Specialized Hospital, Addis Ababa, Ethiopia.

Participants: We recruited about 418 participants using systematic sampling technique for an interview during the study period.

Measurement: Data were collected by face-to-face interviews. Internalized stigma of mental illness scale was used to measure internalized stigma. The Rosenberg self- esteem scale and the Oslo-3 social support were instruments used to assess the associated factors. Bivariate and multivariate logistic regressions were performed to identify factors associated with the outcome variable. Odds ratio with 95% confidence interval were computed to determine the level of significance.

Results: The magnitude of internalized stigma was 24.9 %(95%CI: 21.2-28.9%). In the multivariate analysis, unemployed (Adjusted odd ratio (AOR)=2.3,95% CI :1.0,5.0), unable to read and write(AOR=3.3,95%CI:1.05,10.7), poor social support(AOR= 5.3,CI:1.9,15.0), ≥4 previous hospitalization due to bipolar disorder(AOR= 2.6,95% CI:1.1,6.1) and low self-esteem(AOR= 2.4,95%CI:1.1,5.1) had a significant association with internalized stigma.

Conclusions: One in four patients with bipolar disorder reported high internalized stigma. Unemployment, low educational status, low self-esteem, poor social support and patients hospitalized more than three times before had significantly associated with internalized stigma. Thus, stigma reduction program is essential by focusing on self-esteem improvement and psychological health of patients to increase their stigma resistance for counteracting effects of internalized stigma.

Strengths and limitations of the study

- The limitation of the study emanates from its cross-sectional design, which might not show causal relationship.

- Social and recall biases might have occurred among patients while interviewing the questionnaire.
- Internalized stigma scale can be used for future studies because it had good internal consistency in this study.

Key words: Internalized Stigma, Bipolar disorder, Ethiopia

Introduction

The World Health Organization (WHO)considers stigma about mental illness as a global health problem because it has a direct effect on the overall quality of life of people with mental illness [1, 2]. Mental health research identified different interrelated levels of stigma, including internalized stigma[3]. Internalized stigma is a phenomenon of accepting and incorporating a negative stereotype about mental illness in to the identity of people [4, 5].

Bipolar disorder is one of the most severe mental illnesses, which is characterized by fluctuating periods of mania and depression. In severe episodes of the disorder, it contains delusions and hallucinations[6]. When the onset of the illness is early in age, severe and chronic, Its disability impact is high [7]. It is the sixth cause of disability[8]. Studies in developed and developing countries showed that 18.5% to 46% of patients with bipolar disorder have internalized stigma [9-16]. For example, the magnitude of internalized stigma has been 38.7% in Kerala, India[14],21.6 %, and 33.7% in Nigeria[13, 17]. Because of internalized stigma, patients might have a reduction of moral, increased avoidance behaviors, and reduced social functioning [18-20]. It also has an impact on individual's decision to seek treatment and create similar barriers to life opportunities and achievements [21, 22]. Moderating and risk factors for internalized stigma among patients with bipolar disorder have been sex, middle age, low level of education, unemployment, severity of depression, perceived social support, family history of mental illness, number of previous hospitalization, longer duration of illness, and low-self esteem[9-11, 14, 16, 17, 23, 24]. Patients belief about the cause the illness is more frequently associated with stigmatized attitude, and results in less likely to seek the recommended treatment[25]. Patients with high internalized stigma have lower adherence to their treatment and the condition of the illness become more severe [26]. Many patients with bipolar disorder have discontinued their prescribed medications and re-hospitalized, which results in a high cost for the health care system. Even though internalized stigma is high and has different impacts, there is no study findings which shows its magnitude among patients diagnosed with bipolar disorder in Ethiopia. Therefore; determining the magnitude and associated factors of internalized stigma of patients diagnosed with bipolar disorder is important for controlling bipolar symptoms, decrease the

burden of relapse and regain basic life functioning which all contributes for improving patients' quality of life.

Objective: The aim of this study was to assess the magnitude of internalized stigma and associated factors among people diagnosed with bipolar disorder at Amanuel Mental Specialized hospital, Addis Ababa, Ethiopia, 2016.

Methods and materials

Study setting and period: An institution based cross-sectional study design was conducted among patients diagnosed with bipolar disorder who had follow ups at Amanuel Mental Specialized hospital (AMSH) in Addis Ababa, Ethiopia between May and June 2016. It was the first mental specialized hospital that started mental health services in Ethiopia. It gives treatment service for patients coming with different mental health problems in the outpatient and inpatient setting at the moment.

Study population: The study included patients aged 18 years and above during data collection in the outpatient department of the hospital. Patients with positive symptoms/acutely disturbed, unable to communicate and hearing problem were excluded**.**

Sample size determination and technique

We determined the sample size by using the single population proportion formula with the assumptions of 50% prevalence of internalized stigma, 0.5P, 1.96Z(standard normal distribution), 95% CI, α=0.05, and a 10% non-response rate. Accordingly, a representative/probabilistic sample was calculated to be 423. Participants were recruited randomly by using the systematic sampling technique. The sampling interval was determined by dividing the total study population who had follow up during the data collection period by the total sample size; then the starting point was randomly selected.

Study variables

The dependent variable was internalized stigma measured by the internalized stigma of mental illness scale. We measured internalized stigma as a dichotomous variable (yes/no). Independent variables included socio-demographic factors, psychosocial factors, and clinical variables (age at the onset of the illness, number of episodes, duration of the treatment, and number of previous hospitalization).

Data sources and measurement

Data were collected by face-to-face interviews using a semi-structured questionnaire by six mental health professionals by a means of the Amharic version of the tool for a month. The interviews were carried out after the patients have been seen by their physician. The questionnaire was designed in English and translated to Amharic and back to English to maintain consistency. Though the translated version of the questionnaire was not validated, pre test was done prior to the actual data collection time. Data collectors were trained on introduction to bipolar disorder and stigma, how to interview and explain unclear questions. Furthermore, they were made aware about ethical aspects of the study, such as confidentiality/anonymity/, data management and securing .respondents informed consent for participation.

Internalized stigma was measured using the 29 item internalized stigma of mental illness scale which had five domains, namely alienation, stereotype endorsement, discrimination experience, social withdrawal and stigma resistance. It had a likert response options ranging from (1) " strongly disagree" to (4) "strongly agree" and the total score was calculated by summing the 29 items[4] and a cut-off ≥2.5, that is, study participants had internalized stigma [15]. We adapted the tool from a study conducted in Jimma, Ethiopia[24]. It showed a high internal consistency, and reliability (Kappa=0.89). We conducted a reliability analysis for the translated Amharic version of the tool and showed a high score (Cronbach α= 0.93).

Social support was measured using the Oslo 3-items social support scale with scores ranging from 3 to 14: 3–8=poor social support; 9–11=intermediate social support; and 12–14=strong social support[27].

Self-esteem was assessed by the Rosenberg self- esteem scale and categorized into low and high self-esteem score[28].

Items on socio-demographic factors (age, sex, ethnicity, marital status, religion, educational and occupational status) were adopted from a variety of literatures.

Data processing and analysis

Data were entered into EPI info version 7 after checking completeness and then exported to SPSS version 20 for analysis. We computed descriptive, bivariate and multivariate logistic regression analyses to see the frequency distribution and to test the association between independent and dependent variables, respectively. Factors associated with internal stigma were selected during the bivariate analysis with a p-value <0.2 for further analysis in the multivariable logistic regression analysis. In the multivariable logistic regression analysis, the strength of

association was evaluated using the adjusted odds ratio with a 95% CI, and a P-value less than 0.05.

Ethical consideration

Approval was obtained from the joint Ethical Review Committees of the University of Gondar and Amanuel mental specialized hospital. The approval number was **psy/201/08**. We received written informed consent from study participants after explaining the purpose of the study.

Patient and public involvement

Our study participants were not involved in the study design and recruitment.

Results

A total of 418 participants took part with response rate of 98.8%. From five participants, 4 were not voluntary to participate and one discontinued the interview. The mean (SD) age of the respondents was 34.29 (10.4) years, and 164(39.2%) were in the age range of 25-34 years; 216(51.7%) were male; 223(53.3%) were single, and 140 (33.5%) were secondary school. The majority, 311(74.4%) of the participants were living in urban. According to world development report 2010 180(43.1%) were above poverty bench mark **(Table 1).**

Table 1: Frequency and percentage of patients with bipolar disorder on follow ups at Amanuel Mental specialized Hospital, Addis Ababa, Ethiopia, 2016(n=418)

Variables	Category	Frequency	Percent
Age	18-24	66	15.8
	25-34	164	39.2
	35-44	120	28.7
	≥44	68	16.3
Sex	Male	216	51.7
	Female	202	48.3
Religion	Orthodox	230	55.0
	Muslim	94	22.5
	Protestant	82	19.6
	Others	12	2.9
Marital status	Single	223	53.3
	Divorced, widowed	65	15.6
	Married	130	31.1

Ethnicity	Amhara	151	36.1
	Oromo	120	28.7
	Gurage	75	17.9
	Other	72	17.2
Educational status	Unable to read and write	62	14.8
	Primary	103	24.6
	Secondary	140	33.5
	College and above	113	27.0
Residency	Rural	107	25.6
	Urban	311	74.4
Currently working	Yes	277	66.27
	No	141	33.73
Type of occupation	Government employ	58	13.9
	Farmer	45	10.8
	Private enterprise	121	28.9
	other	53	12.7
Household monthly income	Extreme poverty	113	27.0
	Poverty bench mark	125	29.9
	Above poverty bench mark	180	43.1

Regarding the clinical characteristics of participants, the majority, 255(61.0%) were developing the disorder before 25 years of age, and157 (37.6%) had the illness for more than 10 years. Of the respondents, 220(52.6%) had treatment duration of less or equal to six years, and 251(60%) of them had more than 2 episodes. In terms of previous hospitalization, 218(52.2%) of the patient had hospitalized because of the disorder.

A small number, 45(10.8%) of the participants were hospitalized ≥ 4 times previously, and 310(74.2%) had the manic episode. About 190 (45.5%) took traditional treatment for their illness; 119 (28.5%) had family history of mental illnesses, and 144(34.4%) were attempting suicide. Of the total 418 participants, 233 (55.7%) discontinued their medication and 25(10.7%) were discontinuing because of perceived stigma. Regarding psychosocial factors, 176(42.1%) of the participant had poor social support, and 133 (31.8%) had low self-esteem **(Table 2).**

Table 2: Frequency and percentage of clinical and psychosocial factors among people with bipolar disorder at Amanuel mental specialized hospital, Addis Ababa, Ethiopia, 2016 (n=418).

Variables	Category	Frequency	Percent
Age at onset of illness	≤25years	255	61.0
	>25 years	163	39.0
Duration of illness	<5 years	147	35.2
	5-10years	114	27.3
	>10 years	157	37.6
Treatment duration	≤6years	220	52.6
	>6years	198	47.4
Number of episodes	<2	167	40.0
	≥2	251	60.0
Presence of hospitalization	yes	218	52.2
	no	200	47.8
Number of hospitalization	<4	175	41.9
	≥4	45	10.8
Current episode	Manic	310	74.2
	Depressive	108	25.8
Ever had traditional treatment	Yes	190	45.5
	No	228	54.5
Family history of mental illness	Yes	119	28.5
	No	299	71.5
Previous suicidal attempt	Yes	144	34.4
	No	274	65.6
Ever had discontinuation of medication	Yes	233	55.7
	No	185	44.3
Contribution of stigma for discontinuation of medication	Yes	25	5.9
	No	208	49.8
Social support	Poor	176	42.1
	Intermediate	148	35.4
	Strong	94	22.5
Self esteem	Low self esteem	133	31.8
	High self esteem	285	68.2

Magnitude of internalized stigma

The prevalence of internalized stigma among participants was 24.9 %, with 95% CI (21.2, 28.9). Regarding the subscales of ISMI, 151 (36.1%), 71 (17.0%), 154 (36.8%), and 109 (26.1%) of the

respondents had internalized stigma score in alienation, stereotype endorsement, discrimination experience, and social withdrawal, respectively.

Factors associated with internalized stigma

To determine the association of independent variables with internalized stigma, bivariate and multivariate binary logistic regression analyses were carried out. In the bivariate analysis, factors including current work status, educational status, residence and marital status, patients took traditional treatment, duration of the illness, number of previous hospitalization, number of episode and type of current episode, social support and low self-esteem were significantly associated with internalized stigma at P-value less than 0.2.These factors were entered into the multivariable logistic regression model to control confounding effects.

The result of the multivariate analysis showed that unemployed (AOR=2.3,95% CI :1.0,5.0), unable to read and write (AOR=3.3,95%CI:1.0,10.7), poor social support(AOR= 5.3,CI:1.9,15.0), previous hospitalization(≥4 times) (AOR= 2.6,95%CI:1.1,6.1), and low self-esteem (AOR= 2.4,95%CI:1.1,5.1)were significantly associated with internalized stigma**(Table-3).**

Table 3 : Bivarate and multivariate analysis of internalized stigma and explanatory variables among people with bipolar disorder at the outpatient department of AMSH, Addis Ababa, Ethiopia, 2016(n=418).

variables	Internalized stigma		COR 95%CI	AOR95%CI	P-value
	high	low			
Current working status					
Yes	55	209	1.0	1.0	
No	49	105	1.8(1.1,2.8)	2.3(1.0,5.1)*	0.007
Residence					
Rural	32	75	1.4(0.9,2.3)	1.1(0.5,2.5)	0.244
Urban	72	239	1.0	1.0	
Marital status					
Single	64	159	1.5(0.9,2.6)	1.86(0.73,4.75)	0.356
Divorced or widowed	13	52	1.0(0.5,2.0)	0.4(0.1,1.3)	0.871
Married	27	103	1.0	1.0	
Ever had traditional Rx					
Yes	53	137	1.3(0.9,2.1)	0.9(0.4,1.8)	0.532
No	51	177	1.0	1.0	
Educational status					
Unable to read and write	24	38	2.2(1.1,4.4)	3.3(1.1,10.7)*	0.016
Primary	24	79	1.1(0.6,2.0)	1.6(0.6,4.3)	0.913
Secondary	31	109	1.0(0.6,1.8)	0.8(0.3,2.2)	0.238
College and above	25	88	1.0	1.0	

current episode					
Manic	84	226	1.0	1.0	
depressive	20	88	0.6(0.4,1.1)	1.3(0.4,3.9)	0.332
Number of episode					
<2 years of the illness	33	134	1.0	1.0	
≥2 years of the illness	71	180	1.6(1.0,2.6)	1.0(0.4,2.7)	0.894
Duration of illness					
<5 years	29	118	1.0	1.0	
5-10 years	23	91	1.0(0.6,1.9)	0.8(0.3,2.2)	0.901
>10 years	52	105	2.0(1.2,3.4)	2.1(0.8,5.5)	0.143
Self esteem					
Low	45	88	2.0(1.2,3.1)	2.3(1.1,5.1)*	0.001
High	59	226	1.0	1.0	
previous hospitalization					
<4	38	137	1.0	1.0	
≥4	20	25	2.9(1.5,5.8)	2.6(1.1,6.1)*	0.031
Social support					
Poor	67	109	2.8(1.5,5.1)	5.3(1.9,15.0)**	0.002
Intermediate	20	128	0.7(0.4,1.4)	1.1(0.4,3.2)	0.938
strong	17	77	1.0	1.0	

*=P < 0.05, **= P< 0.01), Hosmer and lemeshow test = 0.78. COR=crud odds ratio, AOR=adjusted odds ratio

DISCUSSION

This study found that a number of patients were experiencing internalized stigma. Some 24.9% of people with the disorder had internalized stigma according to internalized stigma of mental illness scale. Our finding was consistent with reports of studies across 13 Europe countries,21.7%[10], Shanghai,China 24.2%[11],Iran, 26.7%[12], in USA,28%[15].

Conversely, this finding was lower than33.7% noted in Nigeria[13], 38.7% in India[14],46% in Turkey[23], and 36% in USA[16].The variation might be due to the difference in sample size and study subjects. In Turkey, they used only 100 participants and in USA patients with schizophrenia and other psychotic disorders were included in addition to patients with bipolar disorder. The inclusion of patients' with schizophrenia disorder in that study may increase internalized stigma because of the continuous nature of the illness. The other variation might be, in our study most of the participants were from an urban setting and having college and above educational level which in turn reduces level of internalized stigma.

On the other hand, our finding was higher than 18.5% in Turkey [9].The discrepancy might be due to different study design and study subjects they used. In Turkey, they used comparative cross-sectional study design and all the participants were literate. This is due to the fact that those patients with lower educational status may have more internalized stigma.

The odds of internalized stigma among unemployed were 2.3times higher than employed participants. This is consistent with the study conducted across 13 Europe countries[10], Shanghai, China[11], Iran [12]and Jimma[24]. Studies showed that unemployed persons were found to have higher stigma [29-31].They also have less self-tolerant and resistant to stigma. As a result, patients might face problems related to employment opportunities[32-34], and less likely to apply for jobs because they might be preoccupied with thought of unable to achieve their jobs[35].

Participants who could not read and write were 3.34times more likely to experience internalized stigma compared with college and above educational level. This is also supported by studies across 13 European countries[10],Shanghai, China[11], Iran[12], and Turkey[9]. High level of education might protect people from applying devaluing judgment to them. Literacy might also increase the possibility of utilizing multiple sources of information to increase one's knowledge about mental illness. Conversely, people who could not read and write might relate the cause of their mental illness to supernatural explanations like due to demon possessions, bewitchments by an evil spirit, ancestor's sprit, or evil eye , which might contribute to increase internalized stigma[24].

This study found that participants who had more than three admissions have higher internalized stigma than less number of hospital admissions. This is supported by results of a study conducted in India[14]. Repeated hospitalization in the past might show the seriousness of the patients' symptom that could be easily seen by the public and exposed the patient to public stigma. Repeated absent from social situations because of frequent hospitalization might also make the patients easily stigmatized.

Regarding social support, the odds of developing internalized stigma was 5.3 times higher among patients with poor social support compared to strong social support. People with good social support might have increased self-esteem which conversely reduce stigma. Moreover, patients with good social support might have good medication adherence which contributes in controlling of symptoms. This finding was consistent with other study findings[17].

Concerning self-esteem, patients who had low self-esteem were 2.4 times more likely to develop internalized stigma than patients with high self-esteem. This finding was supported by results of studies conducted in various countries [36-39]. Patients with severe mental illness could have low self esteem which reduces patients ability to resist stigma [36].

Limitation of the study

The cross-sectional design of the study prevented us from concluding the casual relationships of the associations we found.

Social desirability and recall bias might also be the other limitations. Since the data collection method was a face-to-face interview which might lead individuals to respond in socially acceptable ways during the process.

The findings of this study could not be generalized to patients in other health facilities.

The tool, internalized stigma of mental illness (ISMI) was not validated although it was widely used as a screening tool for internalized stigma in Ethiopia.

Conclusion

In the current study, more than one-fourth of the sample experienced high internalized stigma. Unemployment, low educational status, ≥4 time's hospitalization, poor social support and low self-esteem had a significant association with internalized stigma. Thus, it is necessary to give emphasis in stigma reduction program by improving individuals' self-esteem, stigma resistance capability, and expanding social support.

List of abbreviations

AMSH: Amanuel Mental Specialized Hospital, AOR=Adjusted Odds Ratio, BD: Bipolar Disorder, CI: Confidence Interval, COR=Crud Odds Ratio, ISMI: Internalized Stigma of Mental Illness, OPD: Out Patient Department, WHO: World Health Organization.

Acknowledgment

The authors acknowledge the University of Gondar and Amanuel Mental Specialized Hospital for funding the study. We extend our gratitude to data collectors, supervisors and study participants for their time and effort. We also thank Mr. Demeke Dessu for his great contribution in language editing of the manuscript.

Declarations

Ethical approval and consent to participation

Approval was obtained from the joint Ethical Review Committees of the University of Gondar and Amanuel mental specialized hospital. We received written informed consent from study participants after explaining the purpose of the study. Confidentiality was maintained by omitting personal identifiers.

Authors' contribution: NA developed the proposal, supervised the data collection, analyzed the data and wrote the draft manuscript. BW, TE revised the proposal, checked the data analysis. SS, DA revised the proposal, check data analysis, revised and approved the manuscript.

Funding: The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Consent for publication

Not applicable

Data Availability

All the data are included in the manuscript and no additional data available.

Competing interest

The authors declare that they have no competing interests

References

1. Bobak M, Powles J: **Poverty and non-communicable diseases in central and eastern Europe, with implications for surveillance. A report for the Non-Communicable Diseases and Mental Health Cluster, WHO, Geneva. Geneva: Word Health Organisation, and London: University College London**. 2001.
2. Scheyett A: **The mark of madness: Stigma, serious mental illnesses and social work**. *Social Work in Mental Health* 2005, **3**(4):79-97.
3. Corrigan PW, Kerr A, Knudsen L: **The stigma of mental illness: Explanatory models and methods for change**. *Applied and Preventive Psychology* 2005, **11**(3):179-190.
4. Ritsher JB, Otilingam PG, Grajales M: **Internalized stigma of mental illness: psychometric properties of a new measure**. *Psychiatry research* 2003, **121**(1):31-49.
5. Corrigan PW, Watson AC, Barr L: **The self–stigma of mental illness: Implications for self–esteem and self–efficacy**. *Journal of social and clinical psychology* 2006, **25**(8):875-884.
6. Goodwin FK, Jamison KR: **Manic-depressive illness: bipolar disorders and recurrent depression**, vol. 2: Oxford University Press; 2007.

7. Ferrari AJ, Stockings E, Khoo JP, Erskine HE, Degenhardt L, Vos T, Whiteford HAJBd: **The prevalence and burden of bipolar disorder: findings from the Global Burden of Disease Study 2013**. 2016, **18**(5):440-450.
8. Murray CJ, Lopez AD: **Evidence-based health policy--lessons from the Global Burden of Disease Study**. *Science* 1996, **274**(5288):740-743.
9. Sarısoy G, Kaçar ÖF, Pazvantoğlu O, Korkmaz IZ, Öztürk A, Akkaya D, Yılmaz S, Böke Ö, Sahin ARJCp: **Internalized stigma and intimate relations in bipolar and schizophrenia patients: A comparative study**. 2013, **54**(6):665-672.
10. Brohan E, Gauci D, Sartorius N, Thornicroft G, disorders GESGJJoa: **Self-stigma, empowerment and perceived discrimination among people with bipolar disorder or depression in 13 European countries: The GAMIAN–Europe study**. 2011, **129**(1-3):56-63.
11. WU Z-g, YUAN C-m, WANG Z, HUANG J, LI Z-z, WANG Y, ZHANG C, FANG Y-rJJoSJU: **Self-stigma in patients with mood disorders and its related factors [J]**. 2011, **11**.
12. Sadighi G, Khodaei MR, Fadaie F, Mirabzadeh A, Sadighi AJIRJ: **Self stigma among people with bipolar-I disorder in Iran**. 2015, **13**(1):32-28.
13. Ibrahim AW, Mukhtar YM, Sadique PK, Tahir BM, Olabisi AM, Bukar RI, Abba WM, Abayomi OBJINDJ: **A facility-based assessment of internalized stigma among patients with severe mental illnesses in Maiduguri, North-Eastern Nigeria**. 2016:1-11.
14. James TT, Kutty VRJAPJoPH: **Assessment of internalized stigma among patients with mental disorders in Thiruvananthapuram district, Kerala, India**. 2015, **27**(4):439-449.
15. Ritsher JB, Otilingam PG, Grajales MJPr: **Internalized stigma of mental illness: psychometric properties of a new measure**. 2003, **121**(1):31-49.
16. West ML, Yanos PT, Smith SM, Roe D, Lysaker PHJSr, action: **Prevalence of internalized stigma among persons with severe mental illness**. 2011, **1**(1):3.
17. Adewuya AO, Owoeye AO, Erinfolami A, Ola BAJIJoSP: **Correlates of self-stigma among outpatients with mental illness in Lagos, Nigeria**. 2011, **57**(4):418-427.
18. Ritsher JB, Phelan JC: **Internalized stigma predicts erosion of morale among psychiatric outpatients**. *Psychiatry research* 2004, **129**(3):257-265.
19. Rusch LC, Kanter JW, Manos RC, Weeks CE: **Depression stigma in a predominantly low income African American sample with elevated depressive symptoms**. *The Journal of nervous and mental disease* 2008, **196**(12):919-922.
20. Manos RC, Rusch LC, Kanter JW, Clifford LM: **Depression self-stigma as a mediator of the relationship between depression severity and avoidance**. *Journal of Social and Clinical Psychology* 2009, **28**(9):1128-1143.
21. Cooper AE, Corrigan PW, Watson AC: **Mental illness stigma and care seeking**. *The Journal of nervous and mental disease* 2003, **191**(5):339-341.
22. Corrigan PW, Watson AC: **The paradox of self-stigma and mental illness**. *Clinical Psychology: Science and Practice* 2002, **9**(1):35-53.
23. Ustündağ M, Kesebir SJTPD: **Internalized stigmatization in bipolar patients: relationship with clinical properties, quality of life and treatment compliance**. 2013, **24**(4):231-239.
24. Girma E, Tesfaye M, Froeschl G, Möller-Leimkühler AM, Dehning S, Müller NJIjomhs: **Facility based cross-sectional study of self stigma among people with mental illness: towards patient empowerment approach**. 2013, **7**(1):21.
25. Serafini G, Pompili M, Haghighat R, Pucci D, Pastina M, Lester D, Angeletti G, Tatarelli R, Girardi PJJop, nursing mh: **Stigmatization of schizophrenia as perceived by nurses, medical doctors, medical students and patients**. 2011, **18**(7):576-585.
26. Kamaradova D, Latalova K, Prasko J, Kubinek R, Vrbova K, Mainerova B, Cinculova A, Ociskova M, Holubova M, Smoldasova JJPp *et al*: **Connection between self-stigma, adherence to treatment, and discontinuation of medication**. 2016, **10**:1289.

27. Asnakew S, Shumet S, Ginbare W, Legas G, Haile KJBo: **Prevalence of post-traumatic stress disorder and associated factors among Koshe landslide survivors, Addis Ababa, Ethiopia: a community-based, cross-sectional study**. 2019, **9**(6):e028550.
28. Robins RW, Hendin HM, Trzesniewski KH: **Measuring global self-esteem: Construct validation of a single-item measure and the Rosenberg Self-Esteem Scale**. *Personality and social psychology bulletin* 2001, **27**(2):151-161.
29. Alonso J, Buron A, Rojas-Farreras S, De Graaf R, Haro JM, De Girolamo G, Bruffaerts R, Kovess V, Matschinger H, Vilagut G: **Perceived stigma among individuals with common mental disorders**. *Journal of affective disorders* 2009, **118**(1-3):180-186.
30. Angermeyer MC: **The stigma of mental illness from the patient's view--an overview**. *Psychiatrische Praxis* 2003, **30**(7):358-366.
31. Corrigan P, Thompson V, Lambert D, Sangster Y, Noel JG, Campbell J: **Perceptions of discrimination among persons with serious mental illness**. *Psychiatric Services* 2003, **54**(8):1105-1110.
32. Van Brakel WH: **Measuring health-related stigma—a literature review**. *Psychology, health & medicine* 2006, **11**(3):307-334.
33. Roeloffs C, Sherbourne C, Unützer J, Fink A, Tang L, Wells KB: **Stigma and depression among primary care patients**. *General hospital psychiatry* 2003, **25**(5):311-315.
34. Wahl OF: **Mental health consumers' experience of stigma**. *Schizophrenia bulletin* 1999, **25**(3):467-478.
35. Loganathan S, Murthy SR: **Experiences of stigma and discrimination endured by people suffering from schizophrenia**. *Indian Journal of Psychiatry* 2008, **50**(1):39.
36. Yanos PT, Roe D, Markus K, Lysaker PHJPs: **Pathways between internalized stigma and outcomes related to recovery in schizophrenia spectrum disorders**. 2008, **59**(12):1437-1442.
37. Mashiach-Eizenberg M, Hasson-Ohayon I, Yanos PT, Lysaker PH, Roe DJPr: **Internalized stigma and quality of life among persons with severe mental illness: The mediating roles of self-esteem and hope**. 2013, **208**(1):15-20.
38. Tang I-C, Wu H-CJPq: **Quality of life and self-stigma in individuals with schizophrenia**. 2012, **83**(4):497-507.
39. Kranke DA, Floersch J, Kranke BO, Munson MRJPS: **A qualitative investigation of self-stigma among adolescents taking psychiatric medication**. 2011, **62**(8):893-899.

STROBE Statement—Checklist of items that should be included in reports of ***cross-sectional studies***

	Item No	Recommendation
Title and abstract	1	(a) Indicated in page- 1
		(b) abstract is indicated in page 2
Introduction		
Background/rationale	2	Explained page -3 of the introduction section starting from reference 26 to objective
Objectives	3	Stated in page-3
Methods		
Studydesign	4	page 4
Setting	5	page-4
Participants	6	(*a*) page-4
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. (Page-4-5)
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). (Page-5)
Bias	9	Describe any efforts to address potential sources of bias-to minimize (we were focusing data collectors training how to interview and select study participants. We used systematic sampling to select and then interview.This description is sated under data sources and measurement –first paragraph on page-5
Study size	10	Explain how the study size was arrived at(page-4)
Quantitativevariables	11	Explain how quantitative variables were handled in the analysis. (page-5-data processing and analysis)
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding(page-5- using multivariate analysis)
		(b) Describe any methods used to examine subgroups and interactions(no sub group)
		(c) Explain how missing data were addressed (page-5 in data processing section)
		(d) If applicable, describe analytical methods taking account of sampling strategy(no applicable)
		(e) Describe any sensitivity analyses (we did not have sensitivity analysis) but reliability-page 5 under data sources and measurement
Results		
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed (page-5-6)
		(b) Give reasons for non-participation at eachstage(some is not voluntary to participate and some discontinue the interview)-page-5
		(c) Consider use of a flow diagram(no flow chart)
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders(page 5)
		(b) Indicate number of participants with missing data for each variable of interest (page-6)
Outcome data	15*	Report numbers of outcome events or summary measure (page-9)
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included(–we mention unadjusted variables and adjusted variables with a statement-page -9 and as summary shown in page 9 and 10 with table.
		(b) Report category boundaries when continuous variables (no continuous variable

used)		translating estimates of relative risk into absolute risk for a meaningful time period
(c) If relevant, consider		(no relevancy here)
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions,and sensitivity analyses (there was no such analysis)
Discussion		
Key results	18	Summarise key results with reference to study objectives (page-10)
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or Imprecision. Discuss both direction and magnitude of any (page12)
Interpretation	20	Give acautious over all interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant (page-12)
Generalisability	21	Discuss the generalisability (external validity) of the study results(page 12)
Otherinformation		
Funding	22	Give the source of funding and the role of the funders for the present study and,if applicable, for the original study on which the present article is based (stated in the declaration section)

*Give information separately for exposed and unexposed groups.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the STROBE Initiative is available at www.strobe-statement.org.