

Magnitude and associated factors of disability in patients with schizophrenia attending Gondar, Felegehiwot and Debretabor hospitals Amhara North West Ethiopia 2019: Institutional based cross-sectional study.

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Abstract

Background Schizophrenia is a severe, chronic and disabling mental illness that places significant burden not only on the individuals, but also on their families and society. As per our knowledge there is no study conducted on prevalence and associated factors of disability in schizophrenic patients in Ethiopia. Their fore, this study aimed to assess the magnitude and associated factors of disability in patients with schizophrenia attending Gondar, Felegehiwot and Debretabor hospital, North West Ethiopia 2019

Methods An Institutional -based cross-sectional study was conducted among schizophrenic patients attending Gondar, Felegehiwot and Debretabor hospitals Amhara Ethiopia. A total of 420 participants were included in the study. Data were collected by face to face interview using systematic random sampling method. Disability was measured using World Health Organization Disability Assessment Scale 2.0. Coded variables were entered into Epi data V.4.4.2 and exported to SPSS V.24 for analysis. Bivariate and multivariate logistic regressions with OR and 95% CI were employed. The level of significance of association was determined at p-value < 0.05.

Result A total of 420 participants were interviewed, with a response rate of 99.3%. The magnitude of disability in this study was 41.7% (95%CI: 36.9, 46.4). Current use of alcohol (AOR = 2.47, 95CI;1.36,4.48), being jobless(AOR = 3.27, 95CI; 1.80, 5.93)., had negative symptoms (AOR = 13.05,95CI,7.58,22.45), had 5 and more years of illness(AOR = 2.75,95CI;1.29,5.86) and had 5 and more years of untreated psychosis (AOR = 3.78,95CI, 1.85,7.75) were predictors of disability.

Conclusion and recommendation: The magnitude of disability in this study was high. Avoidance of alcohol usage, early initiation of treatment, creating job opportunity and giving special emphasis for patients having negative symptoms is recommended.

Background

Schizophrenia is a clinical syndrome comprising several discrete clinical features with extensive variation between individuals. The central features include 'positive' such as hallucinations, delusions, disorganization of thought, bizarre behavior and incongruity of affect. 'Negative' symptoms include loss of motivation, restricted range of emotional experience and expression, alogia and reduced hedonic capacity(1).

Schizophrenia is a sever, chronic and disabling mental illness that places significant burden not only on the individuals, but also on their families and society(2). Now a day schizophrenia affects approximately 20-24 million people worldwide(3).

Disability is one of the consequences of schizophrenia that individuals afflicted with it experience. It is highly prevalent across patients themselves, families, communities and professionals(4). Disability in schizophrenia interferes with self-care and mental illness medical care, further worsening physical health to produce a vicious cycle of disability(5).

The items of self-care, spare time activity, speed of performance, interest and information and dealing with an emergency situation constitute personal disability(6).Different research revealed that level of disability is more in chronic and episodic mental disorders(7).

Schizophrenia often associated with residual symptoms and significant functional impairment (8). In the global burden of disease study, schizophrenia accounted for 1.1% of the total disability-adjusted life year (DALYs) and 2.8% of Years lived with disability (YLDs)(9).

Despite long years of pharmacological and psychosocial interventions, schizophrenia remains one of the leading causes of disability, which encompassing the entire range of an individual's personal, social and occupational functioning(6, 10). Several long-term follow-up studies have proved that varying degrees of recovery is possible(11), the World Health Organization finds this disease the world's fourth leading cause of disability(12).

In a recent study comparing the functional disability between schizophrenia and bipolar disorder resulted in greater disability in schizophrenia than bipolar Disorder (13, 14). It has been perceived that the level of disability is more in chronic mental disorder. The disability that may result directly include poor self-care, inability to manage the tasks of daily living, social withdrawal, poor functioning in affinitive roles and work incapacity(15).

Individuals with schizophrenia commonly experience diverse psychosocial function difficulties beyond the symptoms of the disease. Previous study analyzed that various aspects of psychosocial disability occur in schizophrenia such as psychopathological symptoms(16), impairments of basic cognition(16), social cognition(17), emotional experience(18), social functioning(19), vocational functioning (20)and quality of life(21, 22).

Particularly social disability is one of the most crippling aspects of functioning in schizophrenic patients because of in a patient with schizophrenia there is a range (16)of deficits in emotion processing, including the ability to accurately perceive emotions, to use emotions to facilitate thinking and decision making, and to understand and manage emotions in oneself and others(23).

According to research done in low- and middle-income countries mental disorders accounts 25.3% and 33.5% of all years lived with a disability respectively. People living with mental illness usually suffer from educational and income-generation opportunities and poor social networks within their society. For instance, of all disabilities, severe mental illness is associated with the highest rates of unemployment, rating up to 90%. Despite the widespread availability of medications that suppress psychosis and prevent relapse, most patients with chronic mental illness such as schizophrenia remain disabled in different function in the community(24).

A research done in India among One hundred participants diagnosed to be suffering from schizophrenia as per DSM IV or ICD-10, 83% of them found with mild to moderate disability(25).

Another comparative study in Southern India showed that, patients on antipsychotics had significantly less disability across all domains of disability, which was rating as 40% of the patients with treatment were disabled in contrast to 71% of the patients not receiving treatment.(26).

Likewise a comparative study of disability in individuals with bipolar affective disorder and schizophrenia in a sub-Saharan African revealed that 24.93% and 27.02% patients were disabled respectively. The factors associated with this study were: unemployment status and remittance source of income(14).

Disability in schizophrenia is main public health problem due to severity, chronic, and disabling nature. Its impact is not limited to the individual but rather it passes down to the whole family and society. Inability to function in

everyday settings is responsible for the huge indirect costs of schizophrenia, which may be as much as three times larger than direct treatment costs for psychotic symptoms.

Early treatment with antipsychotic reduces the severity as well as the occurrence of disability. In Ethiopian context, prevalence studies of disability in schizophrenia are very scarce. It is therefore, necessary to assess the magnitude and associated factors of disability in schizophrenic patient. The findings are relevant to plan intervention programs for the chronic mentally ill. As it attempts to identify the right time, it will also help them be familiar with the sensitive time when disability in schizophrenia is higher.

Therefore, this study aimed to assess the magnitude and associated factors of disability among schizophrenic patients at Debre tabor, Felegehiwot and Gondar general hospital attending psychiatry unit, Amhara North West Ethiopia, 2019.

Methods

An institutional based cross-sectional study was conducted in January and February 2019. The study was conducted at Debre tabor, Felegehiwot and Gondar hospitals which are Far from 666, 563 and 738 km respectively north of the capital city Addis Ababa. Based on monthly report of psychiatry unit there are approximately about 100 at Debre tabor, 250 at Felegehiwot and 280 patients at Gondar hospital. At Debre tabor town there are 1 Hospital, 3 health centre and 3 private health institutions; at Felegehiwot there are 3 hospitals, 3 health centers, 4 health posts & 4 private health institutions and at Gondar there are 1 hospital, 3 health centers, 4 health posts & 5 private health institutions that providing health services.

Within each hospital 5-15 psychiatry professionals are available who rendering services.

Study participants and sampling

The study participants were recruited by using systematic random sampling technique. Proportional allocation of the sample was used for each hospital to get representative data in all hospitals. After calculating K value (N/n), the participants were selected in each 2 value and the first participant was determined by lottery method. This recruitment process was done on the registration book of the hospital. Participants aged 18 years and above and having no active psychopathology was included in the study during data collection period. There were a total of ~630 schizophrenic patients who had follow up over a month in the three hospitals and participants who were epileptic and intellectually disabled were excluded.

Sample size determination

The sample size was determined by using a single population proportion formula

Taking into account the following assumption, the proportion of patients with schizophrenic (p) is 0.5%; (as there was no research done in Ethiopia), the margin of error (α) =0.05; level of confidence (95%), 1.96 Z (standard normal distribution), and 10% non-response rate. Accordingly, a representative sample was calculated to be 423.

Study variables

The dependant variable was disability measured by WHO disability assessment scale 2.0. We measured disability as dichotomous variables (yes/No).

Independent variables included Sociodemographic factors (age, sex, marital status, ethnicity, religion, residence, educational, and occupational status), clinical variables (current medication, number of medication, duration illness, duration of untreated psychosis, positive, and negative, and substance-related factors (alcohol consumption, cigarette smoking, khat chewing)

Data sources and measurement

Data were collected by face-to-face interviews using a semi structured questionnaire by four trained mental health professional specialists by means of the Amharic version of the tool for a month. The questionnaire was designed in English and translated to Amharic and back to English to maintain its consistency. Data collectors were trained on how to interview participants and explain unclear questions and the purpose of the study. Furthermore, they were made aware about ethical principles, such as confidentiality/ anonymity/data management, and securing respondents' informed consent for participation.

Disability was measured using WHODAS 2 which has 36-item self-report measure with Likert response options ranging from¹ 'None' to⁵ 'extremely' for each item, giving a potential scale score range of 36-180 and disability was explained by the sum of WHODAS 2 items scored above mean. We adapted this instrument from a study conducted in rural Ethiopia(27). It showed a high internal consistency, reliability and a strong correlation with disability diagnosis. We conducted a reliability analysis for data that gave acceptable score (Cronbach's $\alpha=0.73$).

Disability: is any restriction or lack (resulting from an impairment) of ability to perform an activity in the manner or within the range considered normal for an individual in his or her socio-cultural setting(28).

Disability in schizophrenia: The presence of disability in schizophrenia was explained by the sum of WHODAS 2 items scored above mean.

Substance use history

To examine substance use history, respondents were asked: 'Have you ever used any substance in the last 3 months or in your lifetime?' and the responses were yes/no(29)

Negative and positive symptoms

To examine the psychopathologies: Participants were asked have you ever experienced any of negative or positive symptoms and the responses were yes/No.

Number of medications

To examine the numbers of medication that participates were taking: Respondents were asked how many medication you are taking? The responses were one/two or more.

Items on Sociodemographic factors

Items on Sociodemographic factors (age, sex, and ethnicity, religion, and marital status, residence, educational 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-data V.4.4.2 and then exported to SPSS V.24 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 disability were selected during the bivariate analysis with a $p < 0.05$ for further analysis in the multivariable logistic regression analysis. In the multivariable logistic regression analysis, variables with $p < 0.05$ at 95% CI with adjusted OR were considered as statistically significant.

Ethical consideration

Permission was obtained from Amhara Health Bureau Ethical Committee. We received written informed consent from study participants and confidentiality was maintained by omitting personal identifiers.

Patient and public involvement

In the current study, participants were people who had follow-up at outpatients departments of psychiatry and they were not involved in the study design and recruitment. The results of this study will be disseminated to the Federal Ministry of Health, Amhara Health Bureau and the three hospitals.

Results

A total of 420 respondents were participated in this study with the response rate of 99.3%. Majority of the respondents were males 221 (52.6%). Most of the participants were single 222(52.9%), orthodox followers 369(87.9%) and Amhara by ethnicity 418(99.5%). Regarding their occupation, about 1/4th of them were jobless 108(25.7%) (table1).

Table 1: Sociodemographic characteristics of the participants attending Debretabor, Felegehiwot and Gondar hospitals, North West Ethiopia, 2019 (n=420).

Characteristics		Frequency	Percent
Age	18-24	115	27.3
	25-39	209	49.8
	40-49+	96	22.9
Sex	Male	221	52.6
	Female	199	47.4
Marital status	Single	222	52.9
	Married	126	30
	Widowed	16	3.8
	Divorced	56	13.3
Religion	Orthodox	369	87.9
	Muslim	49	11.7
	Protestant	2	0.5
Region	Amhara	418	99.5
	Tigray	2	0.5
Educational status	Illiterate	158	37.6
	Primary school	126	30
	Secondary school	80	19
	Diploma	30	7.1
	Degree and above	26	6.2
Job status	Has job	312	74.3
	Jobless	108	25.7
Residence	Urban	211	50.2
	Rural	209	49.8

Substance related factors of the respondents

Majority of the respondents had ever use of alcohol and about 1/4th of the participants had current use of alcohol (Figure1)

Clinical factors

Majority of the respondents were taking medications currently 401(95.5%) and were taking only one medication 384 (91.4%). Near to half of the participants had positive symptoms 200(47.6%) and were untreated 215(51.2%)

(Table2).

Table 2: Clinical factors of the participants attending Debretabor, Felegehiwot and Gondar hospitals, Amhara Ethiopia, 2019(n=420)

Characteristics		Frequency	Percent
Negative symptoms	Yes	180	42.9
	No	240	57.1
Positive symptoms	Yes	200	47.6
	No	220	52.4
Taking medication currently	Yes	401	95.5
	No	19	4.5
Number of medications	One medications	384	91.4
	2>= medications	36	8.6
Duration of the illness	<1year	104	24.8
	1-5 years	184	43.8
	>=5	132	31.4
Duration of untreated psychosis	1-2 years	91	21.7
	2-5 years	114	27.1
	>=5 years	215	51.2

Magnitude of disability

Magnitude of disability in this study was 41.7% (95 % CI: 36.9, 46.4).

Factors associated with disability

To determine the association of independent variables with disability, bivariate and multivariate binary logistic regression analysis were carried out.

On the bivariate analysis of disability in relation to each explanatory variables: Not taking medication currently, longer duration of the illness, longer duration of untreated psychosis, current use of alcohol, being jobless, had positive and negative symptoms were found to be significant at a P value <0.05. These factors were entered into multivariable binary logistic regression for further analysis in order to control confounding effects. In multivariate analysis having current alcohol use, being jobless, having >=5 years of duration of illness, having untreated psychosis for >= 5years and having negative symptoms were significantly associated with disability at a p-value less than 0.05.

The odds of being disabled among patients with schizophrenia were 2.47 times higher among respondents who use alcohol currently as compared with those who didn't use alcohol currently (AOR=2.47,95CI;1.36,4.48)

Being jobless was 3.27 times more likely to develop disability as compared with those respondents who had a job (AOR=3.27, 95CI; 1.80, 5.93).

The likelihood of developing disability were 2.75 times higher among respondents who had 5 and more years of illness as compared with those respondents who had less than 1 year duration of illness (AOR=2.75,95CI;1.29,5.86).

Those respondents who were not treated for 5 and more years were 3.78 times more likely to develop disability as compared with those respondents who were not treated for less than two years (AOR=3.78,95CI, 1.85,7.75). The likelihood of developing disability was 13.05 times higher among respondents who had negative symptoms as compared with those who had no negative symptoms (AOR=13.05,95 CI,7.58,22.45).

Table 3: Factors associated with disability among schizophrenia patients attending Felegehiwot, Gondar and Debretabor hospitals Amhara, Ethiopia, 2019 (n=420).

variables	Category	Disability		COR(95%CI)	AOR(95%CI)
		Yes	No		
Job status	Has job	100	212	1	1
	Jobless	75	33	4.82(3.00,7.74)*	3.27(1.80,5.93)*
Current use of alcohol	No	106	211	1	1
	Yes	69	34	4.04(2.52,6.48)*	2.47(1.34,4.45)*
Positive symptoms	No	76	144	1	1
	Yes	99	101	1.86(1.25,2.75)*	1.48(0.87,2.53)
Negative symptoms	No	42	198	1	1
	Yes	133	47	13.34(8.33,21,34)*	13.05(7.58,22.45)*
current medication	Yes	160	241	1	1
	No	15	4	5.65(1.84,17.33)*	1.48(0.39,5.62)
Duration of the illness	<1year	32	72	1	1
	1-5 years	77	107	1.62(0.97,2.69)	1.57(0.79,3,13)
	>=5years	66	66	2.25(1.31,3.86)*	2.75(1.29,5.86)*
Duration of untreated psychosis	1-2 years	28	63	1	1
	2-5 years	38	76	1.13(0.62,2.03)	1.60(0.73,3.53)
	>=5years	109	106	2.31(1.38,3.89)*	3.78(1.85,7.75)*

Key: *P<0.05, model fitness (Hosmer and Lemshow) =0.172

Discussion

Schizophrenia remains one of the leading causes of disability and a life-shortening illness, caused mainly by poor physical health and its complications. The end result is a considerably reduced lifespan that is marred by reduced levels of independence. In this study the magnitude of disability was 41.7% (95%CI: 36.9, 46.4). This

finding was in line with the studies conducted in China 41%(25), and other research conducted in China (37%, 44% in men and women respectively(30), in India 41% (31). On the other hand the findings of this study was lower than the previous studies undertaken in India 83%(8), Ranchi institute of Neuro-psychiatry and Allied science Ranchi, 88%(32), Thirthahalli Taluk of Shimoga District, Karnataka 62% (26), in Spain 67.6%(33). The possible reason could be instrument, sample size and cultural difference.

On the contrary the findings of this research was higher than the studies done in Malaysia 34%(34). The difference could be the sample size, in this study the sample size was 420 but in Malaysian study, 128, and in this study, all the respondents were schizophrenic but in case of Malaysia study the participants were both patients with schizophrenia and mood disorders.

On the independent predictors of disability, current use of alcohol being jobless, had negative symptoms, had 5 and more years of illness and had 5 and more years of untreated psychosis were predictors of disability.

Specifically, the greater likelihood of disability occurred among those who used alcohol currently as compared with those respondents who did not use alcohol currently, which is similar with other study (26). The evidence indicates that substance abuse severely complicates schizophrenia by causing relapse, hospitalization, disrupting behavior, creating familial problems, residential instability, decreased functional status, and medication noncompliance (35).

Participants who had negative symptoms were more likely to develop disability as compared with those respondents who had no negative symptoms. This is due to that the negative symptoms of schizophrenia, including problems with motivation, social withdrawal, diminished affective responsiveness, speech, and movement, contribute more to poor functional outcomes and quality of life for individuals with schizophrenia than do positive symptoms(36). This was supported by the studies studied in Turkey, India and a result of met analysis (37–39).

Having 5 and more years of illness was significantly associated with disability in this study. The rationale might be, longer duration of psychosis is associated with poor response to antipsychotic treatment, severity of negative symptoms, and poor functional outcomes(40). The finding was supported by the studies conducted in India (26, 32, 41).

The odds of developing disability were 3.78 times higher among respondents who had 5 and more years of untreated psychosis as compared with those respondents who were not treated for less than two year which is similar with the results of other studies (38, 42). The possible explanation might be there is an association between longer duration of untreated psychosis and poor outcome in schizophrenia. These studies have been interpreted as providing evidence that untreated psychosis may constitute an “active morbid process” that is “toxic” to the brain which leads to disability (43).

Moreover, being jobless was the strongest predictor of disability as compared with those individuals who had a job which was supported by the study done in Taiwan (44). Because employment for individuals living with psychiatric disabilities becomes an acceptable norm and expectation, then the barriers of stigma, class bias, and discrimination diminish(45).

Limitations

The design of the study was cross-sectional; therefore, we were unable to conclude the observed associations may not necessarily any causal direction. Furthermore, social desirability and recall bias might also be the other limitations.

The strength of the study was including a relatively large sample size and since it was face-to-face interview, we were addressing individuals who had disability for further investigation and intervention.

Conclusions

The magnitude of disability in patients with schizophrenia was high. This confirmed that schizophrenia has a greater impact on functionality of the patient. Current use of alcohol, being jobless, had negative symptoms, had 5 and more years of illness and had 5 and more years of untreated psychosis were factors significantly associated with disability. Therefore we recommend that disability focused regular screening of the patient with schizophrenia by trained health professionals and timely linkage for better rehabilitation and other mental health service. It is also necessary to give emphasis to individuals with Current use of alcohol, being jobless, had negative symptoms, had 5 and more years of illness and had 5 and more years of untreated psychosis.

Abbreviations

DALYs: Disability-Adjusted Life Years, DSM: Diagnostic and Statistical manual of Mental Disorders, ICD-10: International Classifications of Disease Tenth editions, IDEAS: Indian Disability Evaluation Assessment Schedule, SPSS: Statistical Package for Social Science, WHO DAS 2.0: World Health Organization Disability Assessment Schedule 2.0, WHO: World Health Organization, YLDs: Years Lived with Disability

Declarations

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Contributors GM developed the proposal, supervised the data collection, TA, GL, revised the proposal, and checked the data analysis. SA, revised the proposal, analyzed the data and wrote the draft manuscript, MA, revised the proposal, and supervised the data collection

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Competing interests None declared.

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A formal letter of permission obtained and submitted to the respective hospital management

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Figures

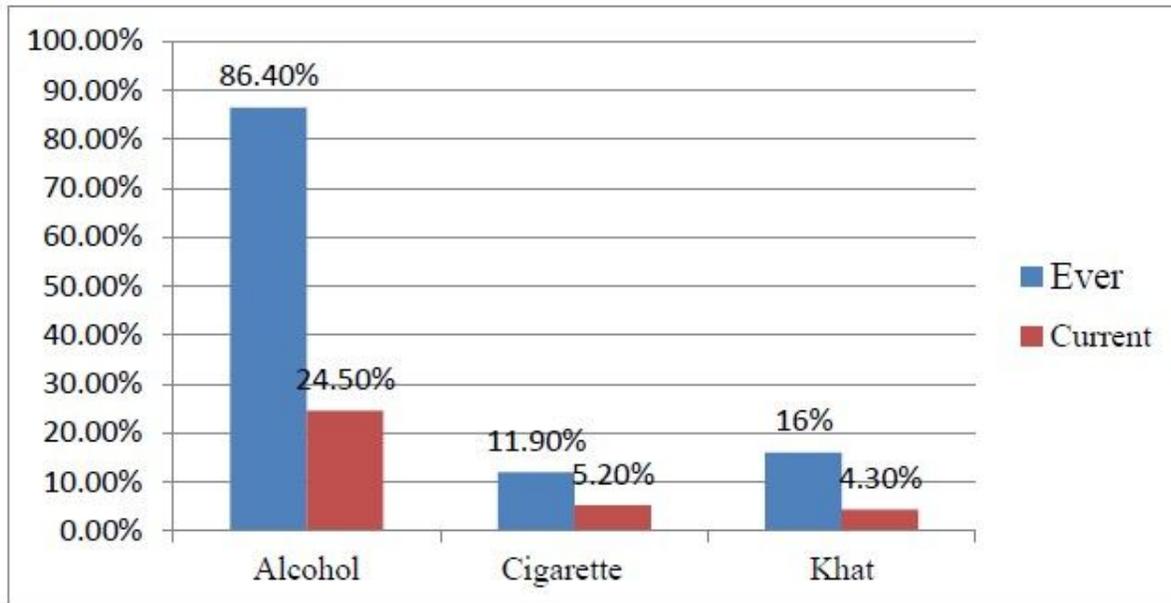


Figure 1

Substance related factors of disability among schizophrenia patients attending Debretabor, Felegehiwot and Gondar hospitals North West Ethiopia, 2019.