

Psychotropic medication adherence among psychiatric patients in Nepal

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Abstract: Introduction: Non-adherence is a common problem that directly affects the outcome. Therefore, to achieve the desired treatment outcomes, it is necessary to consider the factors affecting non-adherence to medication. Furthermore, there seems to be a dearth of information regarding non-adherence to psychotropic drug therapy. Thus, this study was designed to assess non-adherence to psychotropic drug therapy.

Data and Methods: For three months, 384 patients visited the outpatient department (O.P.D.) of the mental hospital in Lagankhel, Nepal. Two sets of questionnaires were used, and the Statistical Package for Social Sciences (S.P.S.S) was used for data analysis.

Results: 31.5% of the 384 patients adhered strongly to their drug therapy, and the non-adherence rate was 68.4%. Patients without a family history of mental illness and those with family involvement had higher adherence rates. Low adherence was seen in people who had a low income, a perception of good and bad health, were diagnosed with depression along with another disorder, or had a history of attempted suicide.

Conclusion: Nonadherence to psychotropic medications was found to be widespread. Additionally, it was associated with multiple factors. Therefore, comprehensive strategies should be developed to address the factors associated with non-adherence to psychotropic medication.

Keywords: Psychotropic medication, Non-adherence, Mental health, Psychiatric disorder

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Introduction

Mental disorders are defined by specific signs and symptoms such as altered consciousness, emotion, behavior, thought, perception, and memory. These changes can result in significant functional impairments, difficulties with self-care and interpersonal relationships, low quality of life, and social and occupational impairment for those affected.[1] Psychiatric disorders are a global public health challenge, with around 729 million people (as of 2017) worldwide.[2] It contributes to 14% of the overall global burden of diseases, and 30% of the non-fatal disease burden, further aggravated by

medication nonadherence.[3] There seems to be a surge in the treatment cost of psychiatric disorders, initially 2.5 trillion USD in the year 2010 and an expected projection to be 6 trillion USD by 2030.[4] According to WHO, there has been a 13% rise in mental health conditions and substance abuse disorders till 2017. Still, despite this, the global median government health expenditure on mental health is less than 2%.[5] According to Nepal's Ministry of Health and Population, approximately 20 percent of the population suffers from a mental disorder.[6] Although the mental health policy was formulated in 1996, there is no standalone mental health policy yet.[7] Moreover, mental health facilities are limited to urban areas because of the lack of specialists and mental health care facilities provided there is only one specialty hospital in Nepal.[7]

The WHO defines medication non-adherence as "a case in which a person's behavior in taking medication does not correspond with agreed recommendations from health personnel".[8] Studies have shown medication non-adherence as a critical challenge in psychiatric care.[9-12] It can exacerbate illness, reduce treatment effectiveness, cause re-hospitalization, poor quality of life, relapse of symptoms, increased comorbidities, wastage of health care resources, and rose suicide.[11, 13, 14] Moreover, adherence is affected by multiple factors, such as social, cultural, and environmental factors, making it necessary to consider the factors associated with medication non-adherence and design appropriate interventions to achieve the desired treatment goals.[15] Despite its importance, there is a lack of research on psychotropic non-adherence in Nepal. Therefore, this study has assessed the adherence to psychotropic drug therapy and the association between various variables involved in treatment adherence.

Research Methodology

A descriptive cross-sectional study was conducted to assess the non-adherence in the patients visiting the mental hospital's outpatient department (O.P.D.). Site approval was obtained from the Department of Psychiatry of the Mental Hospital, Lagankhel. Data collection was done from January 2021 to March 2021.

The sample size was calculated by using a formula for the sample size for a cross-sectional study, $n = \{z^2 p(1-p)\} / d^2$, where n is the sample size, z is the statistic corresponding to the level of confidence (95%), P is expected prevalence, and d is precision (corresponding to effect size). Here, at a 95% confidence level ($z = 1.96$), p was assumed to be 0.5, and d was considered 5% or 0.005. The total sample size was calculated to be 384.

Two sets of questionnaires were used for data collection. Both questionnaires were designed based on the previously published literature with the author's permission.[15] Questions were developed in English and then translated into Nepali to better understand the patients. They were validated by a language expert, and further alterations were made where required. The dependent variable for the study was adherence to medication use for mental health treatment. The independent variables were gender, age, marital status, religion, education level, work status, income, alcohol and other drugs, family history of mental disorders, perception of health, prescribed drugs, family participation, and participation in other activities. One questionnaire consisted of 35 questions pertaining to the demographic, socioeconomic, clinical, and pharmacotherapeutic characteristics of patients with mental disorders. The second questionnaire was the MAT (Measurement of Adherence Test), a seven-question survey. Each question had five options, with scores ranging from 0 to 4. The maximum number on the medication adherence scale was 28, and the minimum was 0. Medication adherence was categorized into three classes, i.e., strong adherence ranging from 22-28, moderate adherence from 15-21, and poor adherence from 0-14. The tabulated range for adherence is mentioned below in Table 1.

Table 1: Adherence scale score

Adherence	Range
Strong	22-28

Moderate	15-21
Poor	0-14

For all statistical comparisons, $P < 0.05$ was considered statistically significant. Statistical analysis was carried out using the Statistical Package for Social Sciences (SPSS) version 23.0 by International Business Machines Corporation (IBM), Armonk, New York. The independent variables were determined using a chi-square test (χ^2) at a significance level of 5%.

Results

Among 384 interviewed individuals, 186 (48.4%) were male, and 198 (51.6%) were female. The majority of respondents were between the ages of 18 and 29, and 85.2% were Hindu. 24.7% had completed secondary school, 39.3% worked in the service sector, and 59.9% earned more than 1,000 Nepali rupees (Nrs) per month. Nearly half of the respondents, 190 (49.4%), were married, and 96 (24.9%) were single. These findings are tabulated in Table 2.

Table 2: Sociodemographic characteristics of the participants (N=384)

Variables	Fre- quency(n)	Percentage (%)
Age (Years)		
15-24	63	16.4
25-34	102	26.6
35-44	102	26.6
45-54	72	18.8
55 or above	45	11.7
Gender		
Male	186	48.4
Female	198	51.6
Religion		
Hindu	328	85.4

Buddhist	30	7.8
Muslim	15	3.9
Christian	11	2.9
Marital Status		
Married	190	49.5
Unmarried	96	25.0
Living as married	2	0.5
Widowed	58	15.1
Separated	15	3.9
Divorced	23	6.0
Education		
Illiterate	76	19.8
Literate	57	14.8
Primary	59	15.4
Secondary	95	24.7
Undergraduate	77	20.1
Graduate and above	20	5.2
Employment Status		
Employed	229	59.6
Unemployed	155	40.4

Occupation		
Service	151	39.3
Business	65	16.9
Labor	22	5.7
Agriculture	15	3.9
Others	131	34.1
Monthly Income (Nepali Rupees)		
Less than 5000	141	36.7
5000-10000	12	3.1
More than 10000	231	60.2

Our findings suggest moderate adherence among the patients visiting the mental hospital. 47.9% showed moderate adherence, while 20.6% and 31.5% showed poor and strong adherence, respectively. Table 3 displays these results.

Table 3: Level of Medication non-adherence among participants (N=384)

Level of non-adherence	% Of participants
Poor	20.6 % (N= 79)
Moderate	47.9% (N=184)
Strong	31.5% (N=121)

The non-adherence rate among the participants was 68.4%. The variables were classified as sociodemographic, clinical, and pharmacotherapeutic characteristics. Our study found a positive correlation between monthly income and treatment adherence ($p = 0.039$), indicating that participants with an income greater than 10,000 NRs adhered to treatment more consistently than those with a lower income. Additionally, there was a statistically significant relationship between treatment adherence and participants who had a history of mental health disorders ($p = 0.027$) or suffered from depression. It suggests that participants who had no family history of mental illness were more likely to

stick to the treatment plan. Individuals diagnosed with depression had a lower adherence rate ($p = 0.024$) than those with other diagnoses. Simultaneously, a statistically significant relationship existed between treatment adherence, motivation to use medication ($p = 0.035$), and family involvement ($p = 0.039$). Participants involved with their families or participating during their treatment period had a higher treatment adherence rate. Those motivated to take medication also demonstrated high adherence to the prescribed treatment. These findings are depicted in tables 4,5 and 6.

Table 4: Association of Sociodemographic variables with Treatment adherence

Variables	Adherence			P* value
	Strong Adherence N=121 (%)	Moderate Adherence N=184 (%)	Poor Adherence N=79 (%)	
Age group				
15-24	17 (14.04)	28 (15.21)	18 (22.78)	0.071
25-34	34 (28.09)	58 (31.52)	10 (12.65)	
35-44	32 (26.44)	42 (22.82)	28 (35.44)	
45-54	22 (18.18)	37 (20.10)	13 (16.45)	
55 or above	16 (13.22)	19 (10.32)	10 (12.65)	
Gender				
Male	63 (52.06)	89 (48.36)	34 (43.03)	0.045
Female	58 (47.93)	95 (51.63)	45 (56.96)	
Religion				
Hindu	108 (89.25)	147 (79.89)	73 (92.40)	

Buddhist	8 (6.16)	18 (9.87)	4 (5.06)	0.090
Muslim	4 (3.30)	10 (5.43)	1 (1.26)	
Christian	1 (0.82)	9 (4.98)	1 (1.26)	
Marital Status				0.627
Married	60 (49.58)	90 (48.91)	40 (50.63)	
Unmarried	32 (26.44)	47 (25.54)	0	
Living as married	0	2 (1.08)	14 (17.72)	
Widowed	20 (16.52)	24 (13.04)	5 (6.32)	
Separated	4 (3.30)	6 (3.26)	3 (3.79)	
Divorced	5 (4.13)	15 (8.15)		
Education				0.796
Illiterate	19 (15.70)	40 (21.73)	17 (21.51)	
Literate	16 (13.22)	29 (15.76)	12 (15.18)	
Primary	23 (19.00)	26 (14.13)	10 (12.65)	
Secondary	31 (25.61)	45 (24.45)	19 (24.05)	
Undergraduate	24 (19.83)	38 (20.65)	15 (18.98)	
Graduate and above	8 (6.61)	6 (3.26)	6 (7.59)	
Employment Status				0.738
Employed	72 (59.50)	107 (58.15)	50 (63.29)	
Unemployed	49 (40.50)	77 (41.84)	29 (36.70)	

Occupation				0.545
Service	50 (41.32)	72 (39.13)	29 (36.70)	
Business	14 (11.57)	33 (17.93)	18 (22.78)	
Labor	5 (4.13)	13 (7.06)	4 (5.06)	
Agriculture	5 (4.13)	6 (3.26)	4 (5.06)	
Other	47 (38.84)	60 (32.60)	24 (30.37)	
Monthly Income (NRS)				0.039*
Less than 5000	47 (25.54)	69 (37.5)	25 (31.5)	
5000-10000	6 (3.26)	3 (1.63)	3 (3.79)	
More than 10000	68 (36.95)	112 (60.86)	51 (64.55)	

Note: * Chi-Square Test at 95% Confidence Interval

Table 5: Association of Clinical variables with Treatment adherence

Variables	Adherence			P* value
	Strong Adherence N=121 (31.5%)	Moderate Adherence N=184 (47.9%)	Poor Adherence N=79 (20.6%)	
Tobacco use				0.690
Yes	61 (50.41)	101 (54.89)	40 (50.63)	
No	60 (49.58)	83 (45.10)	39 (49.36)	

Alcohol use				0.783
Yes	56 (46.28)	79 (42.93)	33 (41.77)	
No	65 (53.71)	105 (86.77)	46 (58.22)	
Use of illicit drugs in the previous year				0.383
Yes	65 (53.71)	109 (59.23)	50 (63.29)	
No	56 (46.28)	75 (40.76)	29 (36.70)	
Family history of MD				0.027*
Yes	51 (42.41)	84 (45.65)	34 (43.03)	
No	45 (37.19)	55 (29.89)	28 (35.49)	
Not reported	25 (20.66)	45 (24.45)	17 (21.51)	
Perception of good health				0.764
Very Good	15 (12.39)	25 (13.58)	12 (15.18)	
Good	25 (20.66)	43 (23.36)	11 (13.92)	
Regular	52 (42.97)	77 (41.84)	36 (45.56)	
Poor	29 (23.96)	39 (21.19)	20 (25.31)	
Clinical Comorbidity				0.660
Yes	54 (44.62)	83 (45.10)	40 (50.63)	
No	67 (55.37)	101 (54.89)	39 (49.36)	
Use of clinical medication				0.953
Yes	57 (47.10)	90 (48.91)	38 (48.10)	

No	64 (52.89)	94 (51.08)	41 (51.89)	
Can report MD				0.927
Yes	59 (48.76)	91 (49.45)	37 (46.83)	
No	62 (51.23)	93 (50.54)	42 (53.16)	
Diagnosis of Depression				0.024*
Depression	38 (31.40)	55 (29.89)	34 (43.03)	
Depression + an- other MD	20 (16.52)	37 (20.10)	10 (12.69)	
Another MD	63 (52.06)	92 (50)	35 (44.30)	
Diagnosis of Schizophrenia				0.158
Schizophrenia	27 (22.31)	45 (24.45)	21 (26.58)	
Schizophrenia + another MD	14 (11.57)	38 (20.65)	17 (21.51)	
Another MD	80 (66.11)	101 (54.89)	41 (51.89)	
Diagnosis of bipolar disorder				0.978
Bipolar Disorder	16 (13.22)	26 (14.13)	11 (13.92)	
Bipolar Disorder + another MD	25 (20.66)	43 (23.36)	17 (21.51)	
Another MD	80 (66.11)	115 (62.5)	51 (64.53)	
Disease duration				0.899

< 1 year	42 (34.71)	59 (32.06)	30 (37.97)	
1-10 years	30 (24.79)	51 (27.71)	20 (25.31)	
>10 years	49 (40.49)	74 (40.21)	29 (36.70)	
Treatment time at the hospital				0.443
< 1 year	33 (27.27)	47 (25.54)	14 (17.72)	
1-2 years	59 (48.76)	82 (44.56)	41 (51.89)	
>2 years	29 (23.96)	55 (29.89)	24 (30.37)	
Information about MD				0.838
Yes	68 (56.19)	100 (54.35)	46 (58.22)	
No	53 (43.86)	84 (45.65)	33 (41.77)	
Attempted suicide				0.048
Yes	19 (15.70)	33 (17.93)	10 (12.65)	
No	102 (84.29)	151 (82.06)	69 (87.34)	

Note: * Chi-Square Test at 95% Confidence Interval

Table 6: Association of Pharmacotherapeutic variables with Treatment adherence

Variables	Adherence			P* Value
	Strong Adherence	Moderate Adherence	Poor Adherence	

	N=121 (31.5%)	N=184 (47.9%)	N=79 (20.6%)	
Can inform medication for their MD				0.946
Yes	72 (59.50)	113 (61.41)	48 (60.75)	
No	49 (40.49)	71 (38.58)	31 (39.24)	
Pills taken per day				0.493
1 Pill	18 (14.87)	17 (9.23)	8 (10.12)	
2-5 Pills	98 (80.99)	157 (85.32)	65 (82.27)	
>5 Pills	5 (4.13)	10 (5.43)	6 (7.59)	
Has information about MD				0.532
Yes	71 (58.67)	103(55.97)	40 (50.63)	
No	50 (41.32)	81 (44.02)	39 (49.36)	
Question regarding the medication				0.883
Yes	65 (53.71)	99 (53.80)	40 (50.63)	
No	56 (46.28)	85 (46.19)	39 (49.36)	
Acquisition of medication				0.382
Public phar- macy	110 (82.64)	170 (92.39)	68 (86.07)	
Public phar- macy + own	10 (8.26)	10 (5.43)	8 (10.12)	

resource				
Other	1 (0.82)	4 (2.17)	3 (3.79)	
Difficulty in acquiring medication				0.054
Yes	69 (57.02)	102 (55.43)	39 (49.36)	
No	52 (42.97)	82 (44.56)	40 (50.63)	
Motivation to use medication				0.035*
Yes	81 (66.94)	117 (63.58)	45 (56.96)	
No	40 (33.05)	67 (36.41)	34 (43.05)	
Feeling pleasant changes				0.768
Yes	81 (66.94)	116 (63.04)	52 (65.82)	
No	40 (33.05)	68 (36.95)	27 (34.17)	
Feeling unpleasant changes				0.599
Yes	66 (54.54)	97 (52.71)	47 (59.49)	
No	55 (45.45)	87 (47.28)	32 (40.50)	
Participation in other activities				0.058
Yes	79 (65.28)	138 (75)	49 (62.02)	
No	42 (34.71)	46 (25)	30 (37.97)	
Failure to take medication				

Yes	87 (71.90)	132 (71.73)	61 (77.21)	0.628
No	34 (28.09)	52 (28.26)	18 (22.78)	
Family participation				0.039*
Yes	89 (73.55)	126 (68.47)	53 (67.08)	
No	32 (26.44)	58 (31.52)	26 (32.91)	

Note: * Chi-Square Test at 95% Confidence Interval

Discussion

Nonadherence is a significant public health issue, particularly in chronic illnesses.[16] The WHO has identified five critical determinants of non-adherence: socioeconomic (including treatment cost), health system-related (consists of the provision of health care, the interaction between patient and prescriber, follow-up, and provider choice), disease characteristics (its severity, whether acute or chronic), therapy-related (poly-pharmacy and adverse drug reactions), and patient-related (literacy, cognition, motivation, and social skepticism).[17] Our research found that critical determinants such as monthly income, motivation, and family participation were related to treatment adherence. Additionally, depression and a family history of mental illnesses were also associated with adherence.

Our study discovered a non-adherence rate of 68.4%, which is slightly higher than the results of other studies,[3, 18, 19] which found adherence rates ranging from 39% to 52%. According to this study, only 31.5 percent of patients adhered to their medication strongly, 47.9 percent adhered moderately, and 20.6 percent adhered poorly. Considering the negative consequences of non-adherence for people with mental illness, such as the increased risk of suicide, more frequent and intense seizures, deterioration of prognosis, and disruption of quality of life,[20] only a few participants demonstrated strong adherence to the prescribed treatment. In our study, females were more non-adherent than males. However, gender was not a significant factor.

Motivation to take medication is critical in medication adherence.[21] The majority of patients with severe mental illnesses may be unable to take their medication. Adherence at any point in time does not guarantee subsequent adherence; therefore, the individual's commitment to using the medicine and motivation to do so are not permanent and are influenced by their perceptions and prior experiences. Thus, even adherent patients require monitoring and attention regarding medication use. In the same way, our results show that the motivation to take prescribed medication is statistically linked to medication adherence. This means that medication adherence depends on how willing a person is to take medication.

Similarly, the study showed an association between family participation and medication adherence. Some studies have revealed similar results.[3, 22, 23] Family members play a critical and decisive role in adherence. They assist and supervise medication use, accompany patients to consultations, acquire medication, and motivate patients to use medicine while also monitoring their skills and capability to use medication continuously. Both emotionally and physically, family involvement is beneficial for a better cure, a speedy recovery, and a good mental state. In a study conducted in the United States, researchers discovered that participants who expressed greater satisfaction with family involvement in their treatment had a lower risk of failing to take their medication due to a lack of drugs or taking medicine differently than their physician's advice.[24]

Another significant finding was the correlation between income and adherence. Participants with a lower income had a lower rate of treatment adherence, whereas those with a higher income had a moderate to strong rate of treatment adherence. This finding is comparable to those of a Korean study.[25] One study found that if medications aren't free and their distribution is interrupted or fails, users may stop taking them because they can't afford them. This is because people with low incomes often can't pay for necessities like food, clothing, and housing.[26] So, it makes sense that the rate of adherence is lower among people with lower monthly incomes, since people have to be able to get the medicine before they can decide whether or not to follow the advice of medical professionals about drug therapy.

Taking a family history can be beneficial in diagnosing mental illness.[27] Our findings support this by indicating a correlation between family history and medication adherence in patients with mental health disorders. It is possible that seeing a member of one's family have a mental illness may have contributed to the next generation's being more dedicated to the treatment. Unfortunately, due to the scarcity of studies examining this variable, we recommend that additional research be conducted to ascertain whether this association pattern is repeated and to facilitate a more consistent discussion of the finding.

The failure to adhere to prescribed treatment regimens is common in people suffering from depression, which can harm their health.[28] Likewise, patients who are depressed are three times more likely to be non-adherent than those who are not depressed.[29] Similarly, in this study, participants diagnosed with depression were significantly non-adherent to the treatment.

Limitations

Although this study can be considered as an important source of information regarding medication adherence in patients with mental health disorders in the only mental hospital available in the whole country, some of the limitations are acknowledged. First, because the study is limited to a single setting, the sample may not necessarily represent the country's general population. Second, the reported non-adherence may underestimate the reality, as self-reported medication adherence may be subject to recall bias.

Conclusion

This study assessed the rate and factors associated with non-adherence among people taking psychotropic medications. The non-adherence was widespread among the participants, and the factors such as monthly income, family history, motivation, depression, and family participation were statistically significant. Therefore, this study should provide a general outlook on non-adherence among psychiatric patients. Furthermore, it is well-known that poor medication adherence is common among people who suffer from mental health disorders, and patients must adhere to the treatment plan for a positive outcome. To improve adherence, the concerned official should develop comprehensive intervention strategies to address the factors associated with non-adherence to psychotropic medication.

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Informed Consent Statement: Written Informed consent was sought from all the participants.

Data Availability Statement: All data generated or analyzed during this study can be provided upon request.

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References

1. Galderisi S, Heinz A, Kastrup M, Beezhold J, Sartorius NJWp. Toward a new definition of mental health. 2015;14(2):231.
2. Saloni Dattani HRaMR. "Mental Health" 2018 [updated August, 2021; cited 2021 8th November]. Available from: <https://ourworldindata.org/mental-health>.
3. Semahegn A, Torpey K, Manu A, Assefa N, Tesfaye G, Ankomah AJSr. Psychotropic medication non-adherence and associated factors among adult patients with major psychiatric disorders: a protocol for a systematic review. 2018;7(1):1-5.
4. Group WaWB. Out of the Shadows: Making Mental Health a Global Development Priority. WHO official website; 2016.
5. WHO. Mental Health WHO website: WHO; 2022 [cited 2022 1st January]. Available from: https://www.who.int/health-topics/mental-health#tab=tab_2.
6. Population MoHa. Mental Health Policy, Nepal Public Health update: Himalayan Times; 2017 [cited 2021 April 5]. Available from: <https://publichealthupdate.com/mental-health-policy-nepal/>.
7. NEPAL W-. Nepal-WHO Special Initiative for Mental Health-Situational Assessment. WHO; 2022.
8. WHO. ADHERENCE TO LONG-TERM THERAPIES: Evidence for action. WHO; 2003.
9. Chang C-M, Wu K-Y, Liang H-Y, Wu EC-H, Chen C-Y, Wu C-S, et al. Adherence patterns with first-versus second-generation antipsychotics for newly diagnosed schizophrenia in Taiwan. 2012;63(5):504-7.
10. Paudel K, Subedi SJJOPaON. Treatment Non-Compliance In Patients Suffering From Schizophrenia And Bipolar Affective Disorder (BPAD): A Comparative Study. 2019;8(2):20-5.
11. Farooq S, Naeem F. Tackling nonadherence in psychiatric disorders: current opinion. Neuropsychiatric disease and treatment. 2014;10:1069-77.
12. Mert DG, Turgut NH, Kelleci M, Semiz MJPP, adherence. Perspectives on reasons of medication nonadherence in psychiatric patients. 2015;9:87.
13. Semahegn A, Torpey K, Manu A, Assefa N, Tesfaye G, Ankomah AJSr. Psychotropic medication non-adherence and its associated factors among patients with major psychiatric disorders: a systematic review and meta-analysis. 2020;9(1):1-18.
14. Al Qasem A, Smith F, Clifford SJE-EMHJ, 17, 356-363. Adherence to medication among chronic patients in Middle Eastern countries: review of studies. 2011.
15. Borba LdO, Maftum MA, Vayego SA, Mantovani MdF, Felix JVC, Kalinke LPJRdEdEdU. Adherence of mental therapy for mental disorder patients to drug health treatment. 2018;52.
16. Costa E, Giardini A, Savin M, Menditto E, Lehane E, Laosa O, et al. Interventional tools to improve medication adherence: review of literature. 2015;9:1303.
17. Lam WY, Fresco PJBri. Medication adherence measures: an overview. 2015;2015.
18. Gebeyehu DA, Mulat H, Bekana L, Asemamaw NT, Birarra MK, Takele WW, et al. Psychotropic medication non-adherence among patients with severe mental disorder attending at Bahir Dar Felege Hiwote Referral hospital, north west Ethiopia, 2017. BMC Research Notes. 2019;12(1):102.
19. Chukwujekwu CD, Adesokun OKJJoB, Medicines. Prevalence of medication non-adherence among psychiatric patients in a tertiary hospital in Nigeria. 2017;5(04):1.
20. Miasso AI, Cassiani SHDB, Pedrão LJJRdEdEdU. Affective bipolar disorder and ambivalence in relation to the drug treatment: analyzing the causal conditions. 2011;45:433-41.

21. Hsieh WL, Lee SK, Chien WT, Liu WI, Lai CY, Liu CY. Mediating Effect Of The Motivation For Medication Use On Disease Management And Medication Adherence Among Community-Dwelling Patients With Schizophrenia. *Patient Prefer Adherence*. 2019;13:1877-87.
22. Febriana B, Susanto W, Rochmawati DH, Setiawati WEJN. Family support is the key to compliance with the treatment of relapsing schizophrenia patients. 2020;15(2):457-61.
23. Farooq S, Nazar Z, Irfan M, Akhter J, Gul E, Irfan U, et al. Schizophrenia medication adherence in a resource-poor setting: randomised controlled trial of supervised treatment in out-patients for schizophrenia (STOPS). 2011;199(6):467-72.
24. Bolkan CR, Bonner LM, Campbell DG, Lanto A, Zivin K, Chaney E, et al. Family involvement, medication adherence, and depression outcomes among patients in veterans affairs primary care. 2013;64(5):472-8.
25. Ji N-J, Hong Y-P. Effect of income level on adherence to antidepressant treatment in first onset depression outpatients. *PLoS One*. 2020;15(9):e0238623-e.
26. Tavares NUL, Bertoldi AD, Mengue SS, Arrais PSD, Luiza VL, Oliveira MA, et al. Factors associated with low adherence to medicine treatment for chronic diseases in Brazil. 2016;50:10s.
27. Andreasen NC, Scheftner W, Reich T, Hirschfeld RM, Endicott J, Keller MBJAoGP. The validation of the concept of endogenous depression: A family study approach. 1986;43(3):246-51.
28. Banerjee S, Varma RP. Factors Affecting Non-Adherence among Patients Diagnosed with Unipolar Depression in a Psychiatric Department of a Tertiary Hospital in Kolkata, India. *Depression Research and Treatment*. 2013;2013:809542.
29. DiMatteo MR, Lepper HS, Croghan TW. Depression Is a Risk Factor for Noncompliance With Medical Treatment: Meta-analysis of the Effects of Anxiety and Depression on Patient Adherence. *Archives of Internal Medicine*. 2000;160(14):2101-7.



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