




Original Article

Assessing the beliefs about antidepressant medication and adherence to therapy in patients with major depressive disorders

Samia Perwaiz Khan¹ , Shagufta Naqvi¹, Rabeea Rizwan¹, Mariam Ansari¹, Shaista Emad^{1,2}, Habib ur Rahman Khan¹, Aafia Akhtar¹, Maniya Syed¹, Naija Ehsan¹ & Anas Moorad¹

¹Jinnah Medical and Dental College (JMDC), Karachi-Pakistan.

²Sohail University, Karachi-Pakistan.

Abstract

Background: Patients on antidepressant therapy have no contact with their physicians until their next appointment, which in most cases could be more than two weeks apart. This crucial time is of utmost importance as this could assess the patient's will to follow the prescribed therapy and the general belief about the benefits of using antidepressant treatment. Thus medication adherence is necessary to reduce the risk of suicidal tendencies and mortality in these patients. The study aimed to evaluate medication adherence and adherence to antidepressant therapy in patients with major depressive disorder.

Methodology: in this cross-sectional study, a total of 101 clinically diagnosed patients with Major Depressive Disorder (MDD) were included in the study from psychiatric and medical OPD from June 2018 to June 2019, from Jinnah Medical College Hospital (JMCH). Belief about medicines questionnaire (BMQ specific and BMQ general), regarding their views about the prescribed medication and the modified questionnaire of the medication adherence scale used, scores were calculated to give a numerical value to measure the adherence to antidepressant medication.

Results: According to the study, 101 patients with major depressive disorder had an overall good belief about medication but have low adherence. Belief about medicines questionnaire (based on BMQ) BMQ- the specific q1-10 score was 36.54 (necessity, concern), BMQ-general 27.98 score, q11-18 (overuse and harm). Regarding their views about the prescribed medication. 86% of participants with the major depressive disorder had low adherence (scores 0-5), and those with high adherence were only 14% (scores 6-8). The patients diagnosed with the major depressive disorder who had co-morbid (diabetes, hypertension, hypothyroidism, etc.) had better adherence for their prescribed treatment as compared to those without co-morbid.

Conclusion: This study indicates that although patients with major depressive disorder from tertiary care hospitals in Karachi had a positive belief about medication but have low adherence to antidepressant therapy.

Keywords

Major Depressive Disorder, Antidepressant Drugs, Medication Adherence, Belief, Modified Adherence Questionnaire.



Citation: Khan SP, Naqvi S, Rizwan R, Ansari M, Emad S, Khan HR, Akhtar A, Syed M, Ehsan N, Moorad A. Assessing the beliefs about antidepressant medication and adherence to therapy in patients with major depressive disorders. APP.2021; 8(1):24-33

Corresponding Author Email: samiaiphk@gmail.com

DOI: 10.29052/2412-3188.v8.i1.2021.24-33

Received 09/12/2020

Accepted 12/05/2021

Published 01/06/2021

Copyright © The Author(s). 2021 This is an open access article distributed under the terms of the [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.



Funding: The author(s) received no specific funding for this work.

Conflicts of Interests: The authors have declared that no competing interests



Introduction

According to WHO, depression is a cause of a major burden on public health globally. Depression affects over 350 million people globally¹. Depression is associated with low mood, loss of interest in daily activities, decreased energy, disturbed sleep and altered appetite, reduced performance and worst scenario, it can lead to suicides^{1,2}. There are two modes of treatment, psychotherapy and antidepressant pharmacotherapy. Antidepressant therapy is most important in reducing the symptoms of depression. Belief about medicine questionnaire (BMQ)² is useful as a tool to assess the high risk of non-adherence. By improving patients' knowledge about their illness might positively affect their medication adherence. Non-adherence to medicines can be defined as patients not taking medication prescribed for the illness, leading to poor patient outcomes. Non-adherence leads to an increase in morbidity and mortality. Patients with chronic illnesses such as depression have difficulty in drug adherence due to prolonged therapy periods and certain side effects.

Also, once they start feeling better, they tend to stop taking the much-required medication. Belief about medication is an essential factor in adherence, specifically when symptoms of depression are improving. Negative beliefs include fear of adverse-effects, drug dependence and expenditure^{2,3}. A major depressive disorder is a mood disorder that causes sadness and loss of pleasure over a prolonged period once antidepressant therapy has been selected. The initial prescription is of sub-therapeutic dose. It can be gradually increased on the follow-up, keeping a close watch for any symptoms of adverse-effects⁴. It has been reported that major depression is common in primary care hospitals⁵. This study was conducted to assess

antidepressant drug adherence in MDD patients and their belief and outcomes in a tertiary care setting of Karachi city of Pakistan.

Methodology

The study was performed on patients attending Jinnah Medical College Hospital (JMCH) Korangi, Karachi, to treat the major depressive disorder. A total of 101 patients were interviewed based on a belief about medicines questionnaire (BMQ) regarding their views about the prescribed medication. BMQ is a tool to measure medication's cognitive representation and is valid and reliable in various diseases medications. BMQ has a five-item scale. It has two parts: assessing patients' beliefs about their medications (BMQ-specific) and assessing patients' beliefs about medications in general (BMQ-general).

The BMQ-specific part covers two themes; the specific necessity theme evaluates patients' views about the necessity and importance of their medication. The specific concern theme comprises patients' beliefs about potential harm and adverse effects of their medications and each of which has a score ranging from 5 to 25. A high score in the necessity theme means that patients think their medications are vital to them; on the other hand, a high score in the concerns theme means that patients are concerned and worried about their medications.

Likewise, the BMQ-general part has two themes; the general overuse theme assesses how patients perceive the extent of medication usage. The general harm theme represents patients' beliefs about the harmful nature of medication in general. The scores of the last two themes range from 4 to 20, and the high score in each theme means a negative perception of medications in general. BMQ-Specific: Specific-necessity



(Q1-Q10): higher scores represent stronger beliefs for the need for medication to maintain health. BMQ-General: overuse (Q11-Q14): higher scores indicate negative views about the way medicines are prescribed. We changed some of the questions to make them more applicable to our study population.

With the help of a modified form of a questionnaire (based on the Medication adherence scale), a score was calculated to give a numerical value to measure the adherence to antidepressant medication. Low adherence was 0-5, and high adherence scores were 6-14. Questionnaires were filled in by interviewing the patients with major depressive disorder concerns about medicines and their perceptions of the medicines' necessity.

The research was carried out one year from June 2018 to June 2019. Patients included in the research were diagnosed with Major Depressive Disorder and those who gave consent to participate in the research. Individuals with any other psychiatric disorder (bipolar, psychosis or substance abuse) or concomitant medications other than antidepressants were excluded from the study.

Written informed consent were obtained and the study protocol was approved by the ethical committee of Jinnah medical and dental college, Karachi, Pakistan.

Statistical analysis was carried out using SPSS version 20.0. New variables were designed by recoding and computing commands. Descriptive statistics of continuous variables, mean, standard deviation, and categorical variables, frequency and percentages were calculated.

Result

Out of the total, 80 patients were included from the psychiatry out-patient department, and 21 patients were included from the medicine out-patient department. The sample comprised of 41 males and 60 females. Around 56% of the participants were employed at the time of data collection and 39% earned within the range of 11-30,000 per month. 43% were smokers, consuming average 9 ± 4.09 cigarettes per day. Fifty-three participants were overweight. Other baseline characteristics of the study participants are given in table 1.

Table 1: Baseline characteristics of the study participants.

Variable	n=101	
Age (years)	42.85±12.729	
Number of children	4±2	
Cigarettes per day	9±4.098	
Time diagnosed with depression (years)	2.26±2.033	
Time diagnosed with co-morbid (years)	6.45±5.430	
OPD	Psychiatry OPD	80(79.20)
	Medicine OPD	21(20.79)
Gender	Male	41(40.59)
	Female	60 (59.40)
Employment status	Not employed	45(44.55)
	Employed	56(55.44)
Monthly Income	<10,000	31(30.69)



	11-30,000	39(38.61)
	31-50,000	26(25.74)
	>51,000	5(4.95)
Smoking Status	No	58(57.42)
	Yes	43(42.57)
BMI (kg/m²)	Normal (up to 24.99)	38(37.62)
	Overweight (25-29.99)	53(52.47)
	Obese (>30)	10(9.90)
No co-morbid		70(69.30)
Co-morbid condition	Diabetes Mellitus Type 1	2(1.98)
	Diabetes Mellitus Type 2	7(6.93)
	Hepatitis A	1(0.99)
	Hypertension	14(13.86)
	Hypothyroidism	1(0.99)
	Peptic Ulcer Disease	2(1.98)
	Rheumatoid Arthritis	1(0.99)
	Systemic Lupus Erythematosus	3(2.97)
Medication used	Bupropion	3(2.97)
	Citalopram	5(4.95)
	Escitalopram	40(39.60)
	Fluoxetine	21(20.79)
	Paroxetine	11(10.89)
	Pregabalin	1(0.99)
	Sertraline	20(19.80)
Timing of Medication	Evening	46(45.54)
	Morning	32(31.68)
	Morning evening	23(22.77)
Scheme of Medicine	Once a day	68(67.32)
	Twice a day	33(32.67)

OPD-Outpatient Department; BMI-Body Mass Index

*Values are given as mean \pm SD or n(%)

Only sixteen 16% (16 out of 101) of participants in our study had a family member diagnosed with depression, with the most prevalent relation being their mother 6% (total of 6 out of 16). Of these family members diagnosed with depression, only 38% (6 out of 16) were being medically treated (Table 2).

**Table 2: Family history of the study participants.**

Variable	n(%)	
A family member diagnosed with depression	No	85(84.15)
	Yes	16(15.84)
Relation to Patient	Brother	4(25.0)
	Cousin	1(6.0)
	Grandmother	1(6.0)
	Mother	6(37.89)
	Sister	2(11.9)
	Son	2(11.9)
Being treated Medically	No	10(63.0)
	Yes	6(38.0)

Table 3: Mean scores of Believe about Medication Questionnaire (BMQ)

Variable	Mean±SD	Median(IQR)
BMQ general (q11-q18)	27.98±5.703	29.00(8)
BMQ specific (q1-q10)	36.54±5.895	38(9)
BMQ specific-necessity (q1-q5)	17.48±3.882	18(6)
BMQ specific-concerns (q6-q10)	19.07±2.758	19(4)
BMQ general overuse (q11-q14)	14.04±3.193	14(5)
BMQ general-harm (q15-q18)	13.94±3.267	14(5)

Using the questionnaire on adherence, a score was calculated to give a numerical value to measure the adherence to antidepressant medication. The study has shown 87% of participants had a low adherence score (0-5), while only 14% had a high adherence score (6-8) (Table 4).

Table 4: Adherence in patients with major depressive disorder (MDD).

Variable	n(%)	
Adherence	Low 0-5	86(85.14)
	High 6-8	15(14.8)

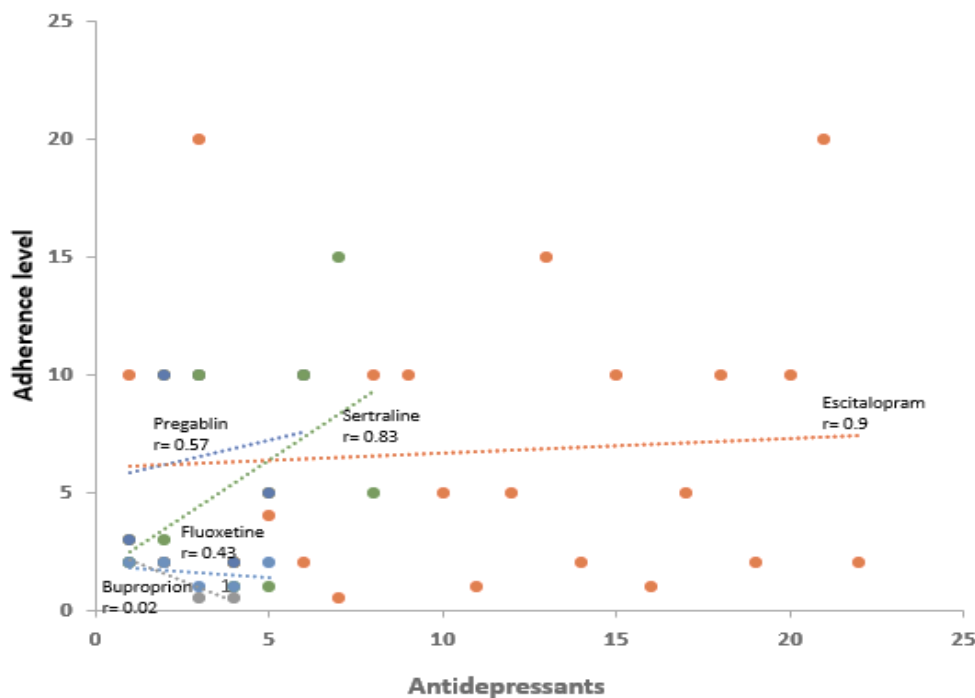


Figure 1: Correlation between Patients' adherence levels on a prescribed Antidepressant drug regimen.

Significant correlation was observed between adherence level and Escitalopram as shown in figure 1 ($r=0.9$).

Discussion

This study was conducted in Karachi's population to evaluate adherence to antidepressant medication and belief about medication, where 101 OPD patients diagnosed with MDD were enrolled from. Around 80% of them belonged to psychiatry OPD, and 21% from medicine OPD. A similar study conducted in a tertiary care setting of Karachi in 2012, notified 432 major depressive disorder patients, of which 53% belong to medicine and 47% from Surgery units at the age of 40⁵. European studies^{6,7} showed that adults and people in middle age are frequently ignored and overlooked within mental health policy and research. According to global data of 2015, World Health Organization (WHO) stated 322 million people with depression⁸. They notified it 5.1% more common among

females as compared to males (3.6%), where regionally depression noted 50% only in South East Asia and Western Pacific areas with gender prevalence highest and lowest; 5.9% amongst females in Africa and 2.5% amongst males in Western Pacific areas⁸. While in this study, females 60% were more depressed in comparison to males. The most common relative with diagnosed depression were mother 6%. Other studies supporting these findings also narrated that 68% of females and 57% of males and relatives with mental health problems were parents⁹.

In our study in Karachi, the highest frequency of these depressive patients was professionally employed at 56% at the highest prevalent income range of 11,000 to 30,000. Although in the study done in Peshawar at Khyber Medical College, a major depressive disorder was 64% in adult



people earning more than 15,000/month¹⁰. Thus these outcomes are in agreement that socio-economic status plays an essential role in an individual's life. Many publications are demonstrating its negative association with depression¹¹⁻¹³.

Our study shows the frequency of smokers as 43% at mean 9 ± 4 cigarettes/ day. A survey conducted in 2011 showed the highest depression in adults who smoke more than five cigarettes/day¹⁴. Another study supported these outcomes, positive association of tobacco cigarettes with depression was observed among 89% of the enrolled subjects¹⁵. It is assumed that people with depression smoke more to relieve their depression; thus, their consumption of cigarettes increases every day¹⁵.

Another demographic variable that is BMI resulting in our findings was 53% highest in depressive patients who were overweight and obese 10% while in contrast to two studies with the highest 34% and 35% incidence of obese^{16,17}. According to WHO and other studies on depression has indicated depression is the second leading cause of disability in Years Lived with Disability (YLDs)^{18,19}. Netherlands Mental Health Survey and Incidence Study (NEMESIS-2) represented the meantime since being diagnosed with depression for participants in our study was 2.26 years with the meantime since being diagnosed with a co-morbid being 6.45 years¹⁸. Additionally, depression itself is also a risk factor for attaining some types of general medical ailments, particularly cardiovascular disease²⁰, which was also reported in our study. The total number of MDD patients reported with co-morbid was 31%. Tripathi et al. reported Diabetes Mellitus as the most common co-morbid 5.78% in depressive patients²¹.

In this study, the common comorbidity observed in MDD patients was 14% Hypertension and 9% Diabetes Mellitus but 70% of patients with no associated comorbidity. Other studies stated cardiovascular disease as the most prevalent 57% co-morbid medical condition with depression^{22,23}.

It is known that a variety of antidepressant drugs available with different classifications and mechanisms of action. However, improbability persists in which therapeutic medication or its class provides the best therapeutic option. According to current clinical medical treatment guidelines by NICE (National Institute for Health and Care Excellence), 2019 SSRIs (e.g. fluoxetine, sertraline, escitalopram, paroxetine) are recommended as the first drug of choice for depression^{24,25}. Cipriani et al. recognized the best three drugs of choice for treating depression: agomelatine, escitalopram, or vortioxetine²⁵. We assessed that escitalopram (40%) and sertraline (20%) were the most commonly prescribed antidepressant drugs while the least prescribed was Pregabalin i.e. 1%.

A study was done in five tertiary care of India also displayed their data that escitalopram was the most commonly prescribed antidepressant drug to depressive patients. At the same time, trazodone was the least prescribed at 0.96% in the year 2016²¹. As we know that the major problem we come across in treating depressive disorders is the patients' adherence and acceptability to drug therapy. In the past, it resulted in augmented relapsed risk²⁶. Therefore we evaluated patients' acceptability and tolerance in our study, which was found 86% low adherence, especially in those patients whose age was above 45 years (95%). In their study, Tamburrino et al. showed 10% of patients



were non-adherent to antidepressant drug therapy, among which all were at age less than 40 years²⁷. A retrospective study also shows its results on analogue to our study of low adherence 77% in the primary psychiatric care of Thailand²⁸.

A study done as UK Defeat Depression Campaign indicated that the effective antidepressant drug therapy, the treatment duration should not be less than four consecutive months, but in their study, they found only 31% of patients adherence to the fourth month (SSRIs: fluoxetine: 31%; paroxetine: 30%; sertraline: 24%)^{25, 29}. This study showed that the higher rate of adherence (17%) is in males with the P-value of 0.324, and it was also observed that patients who were never married had a higher percentage of adherence (18%). A study done by Hans Wouters of Netherlands showed females with higher adherence (78%), and the most adherent patients (73%) lived as partners with a spouse³⁰. One of the reasons for the patient's low drug adherence is the social, financial, family barriers and beliefs; mostly, it was noted that the spouses related non-compliance as they discourage their partners from continuing their medication. The other reasons stated are discouragement from family members and fear of drug dependency due to lack of communication with the clinician³¹.

BMQ was an important tool to identify psychological factors important in non-adherence to medication in chronic diseases³². This study also has proved the utility of this questionnaire for non-adherence to antidepressant therapy, which may increase the risk of relapse.

Conclusion

This study concluded that the belief about medication in MDD patients on antidepressant therapy was sufficient in

participants included from Karachi. However, they were evaluated to have low adherence to antidepressant treatment. By assessing and counselling MDD patients and regular follow-up appointments can minimize patients' low drug adherence. Successful treatment outcomes in MDD most necessary as they can be at high risk of morbidity, mortality and suicides to unmanaged symptoms of depression. Counselling and regular doctor-patient interaction can improve their compliance with medications.

Acknowledgment

The authors would like to acknowledge the patients of Jinnah Medical hospital for participating in this study.

References

1. Marcus M, Yasamy MT, van Ommeren MV, Chisholm D, Saxena S. Depression: A global public health concern. 2012. Available at: https://www.who.int/mental_health/management/depression/who_paper_depression_wfmh_2012.pdf
2. Gagnon MD, Waltemurer E, Martin A, Fridenson C, Gayle E and Hausen DL. Patient beliefs have a greater impact than barriers on medication adherence in a community health centre. *J. Am. Board Fam. Med.* 2017;30(3):331-336.
3. Lim GY, Tam WW, Lu Y, Ho CS, Zhang MW, Ho RC. Prevalence of Depression in the Community from 30 Countries between 1994 and 2014. *Scientific Rep.* 2018;8(1):2861.
4. Sweileh WM, Sa'ed HZ, Nab'a RJ, Deleq MI, Enaia MI, Sana'a MN, Al-Jabi SW. Influence of patients' disease knowledge and beliefs about medicines on medication adherence: findings from a cross-sectional survey among patients with type 2 diabetes mellitus in Palestine. *BMC public health.* 2014;14(1):1-8.
5. Ng CWM, How CH, Ng YP. Managing depression in primary care. *Singapore Med J.* 2017;58(8):459.



6. Edwards J. Fundamental facts about mental health. London: Mental Health Foundation; 2016. Available at: <https://www.mentalhealth.org.uk/sites/default/files/fundamental-facts-about-mental-health-2016.pdf>
7. Depression W. Other Common Mental Disorders: Global Health Estimates. Geneva: World Health Organization. 2017:1-24.
8. Gatsou L, Yates S, Hussain S, Barrett M, Gangavati S, Ghafoor R. Parental mental illness: incidence, assessment and practice. *Men Health Prac.* 2016;19(5).
9. Ishtiaq M, Afridi ML, Imranullah, Khan SA. Depression among the adult population; prevalence & risk factors of depression among adult population of district Peshawar. *Professional Med J* 2018; 25(8):1229-1234.
10. Andrade L, Caraveo-Anduaga JJ, Berglund P, Bijl R, Kessler RC, Demler O, Walters E, Kylyc C, Offord D, Ustun TB, Wittchen HU. Cross-national comparisons of the prevalences and correlates of mental disorders. *Bull. World Health Organ.* 2000;78:413-425.
11. Jo SJ, Yim HW, Bang MH, Lee MO, Jun TY, Choi JS, Lee MS, Lee WC, Park YM. The association between economic status and depressive symptoms: an individual and community level approach. *Psychiatry Investig.* 2011;8(3):194-200.
12. Freeman A, Tyrovolas S, Koyanagi A, Chatterji S, Leonardi M, Ayuso-Mateos JL, Tobiasz-Adamczyk B, Koskinen S, Rummel-Kluge C, Haro JM. The role of socio-economic status in depression: results from the COURAGE (aging survey in Europe). *BMC public health.* 2016;16(1):1-8.
13. Byeon H. Association among smoking, depression, and anxiety: findings from a representative sample of Korean adolescents. *Peer J.* 2015;3:e1288.
14. Fluharty M, Taylor AE, Grabski M, Munafò MR. The association of cigarette smoking with depression and anxiety: a systematic review. *Nicotine Tob. Res.* 2017;19(1):3-13.
15. Moussa OM, Ardissino M, Kulatilake P, Faraj A, Muttoni E, Darzi A, Ziprin P, Scholtz S, Purkayastha S. Effect of body mass index on depression in a UK cohort of 363 037 obese patients: A longitudinal analysis of transition. *Clinical obesity.* 2019;9(3):e12305.
16. Qato DM, Ozenberger K, Olfson M. Prevalence of prescription medications with depression as a potential adverse effect among adults in the United States. *JAMA.* 2018;319(22):2289-2298.
17. Ferrari AJ, Charlson FJ, Norman RE, Patten SB, Freedman G, Murray CJ, Vos T, Whiteford HA. Burden of depressive disorders by country, sex, age, and year: findings from the global burden of disease study 2010. *PLoS med.* 2013;10(11):e1001547.
18. Reddy M. Depression: the disorder and the burden. *Indian J. Psychol. Med.* 2010;32(1):1.
19. Hirschfeld RM. The comorbidity of major depression and anxiety disorders: recognition and management in primary care. *Prim Care Companion J Clin Psychiatry.* 2001;3(6):244.
20. Tripathi A, Avasthi A, Desousa A, Bhagabati D, Shah N, Kallivayalil RA, Grover S, Trivedi JK, Shinfuku N. Prescription pattern of antidepressants in five tertiary care psychiatric centres of India. *Indian J Med Res.* 2016;143(4):507.
21. Kronick RG, Bella M, Gilmer TP. The faces of Medicaid III: Refining the portrait of people with multiple chronic conditions. *Center for Health Care Strategies, Inc.* 2009:1-30.
22. Goodell S, Druss BG, Walker ER, Mat MJ. Mental disorders and medical comorbidity. *Robert Wood Johnson Foundation.* 2011;2.
23. Sheperd N, Parker C. Depression in adults: recognition and management. *Clinical Pharmacist.* 2017.
24. Cipriani A, Furukawa TA, Salanti G, Chaimani A, Atkinson LZ, Ogawa Y, Leucht S, Ruhe HG, Turner EH, Higgins JP, Egger M. Comparative efficacy and acceptability of 21 antidepressant drugs for the acute treatment of adults with major depressive disorder: a systematic review and network meta-analysis. *Focus. Lancet.* 2018;16(4):420-429.
25. Ho SC, Jacob SA, Tangiisuran B. Barriers and facilitators of adherence to antidepressants among out-patients with



- major depressive disorder: A qualitative study. *PloS one*. 2017;12(6):e0179290.
26. Tamburrino MB, Nagel RW, Chahal MK, Lynch DJ. Antidepressant medication adherence: a study of primary care patients. *Prim Care Companion J Clin Psychiatry*. 2009;11(5):205.
 27. Prukkanone B, Vos T, Burgess P, Chaiyakunapruk N, Bertram M. Adherence to antidepressant therapy for major depressive patients in a psychiatric hospital in Thailand. *BMC psychiatry*. 2010;10(1):64.
 28. Donoghue J. Selective Serotonin Reuptake Inhibitor Use in Primary Care. *Clin Drug Investig*. 1998;16(6):453-462.
 29. Wouters H, Rhebergen D, Vervloet M, Egberts A, Taxis K, van Dijk L, Gardarsdottir H. Distinct profiles on subjective and objective adherence measures in patients prescribed antidepressants. *Drugs*. 2019;79(6):647-654.
 30. Ho SC, Jacob SA, Tangiisuran B. Barriers and facilitators of adherence to antidepressants among out-patients with major depressive disorder: A qualitative study. *PloS one*. 2017;12(6):e0179290.
 31. Wei L, Champman S, Li X, Li X, Li S, Chen R, Bo N, Chater A, Horne R. Beliefs about medicines and non-adherence in patients with stroke, diabetes mellitus and rheumatoid arthritis: a cross-sectional study in China. *BMJ open*. 2017;7(10):e017293.

