Incidence and factors associated with medication nonadherence in patients with mental illness: A cross-sectional study

Lucca JM, Ramesh M, Parthasarathi G, Ram D∗

ABSTRACT

Background: In spite of the progress made in the treatment of psychiatric disorders during the last few decades, nonadherence continues to be a frequent phenomenon, often associated with potentially severe clinical consequences and increased health-care costs. There are numerous factors associated with medication nonadherence in patients with mental illness. The aim of the study was to determine the incidence and factors associated with medication nonadherence among psychiatric outpatients. Materials and Methods: A cross-sectional study was carried out in the outpatient psychiatric department of an Indian tertiary care private hospital over a period of 1 year. Patients aged 18 years and above who presented with mental illness as diagnosed by the International Classification of Diseases (ICD)-10 and who were receiving at least one psychotropic medication for at least 1 month were included in the study. Medication adherence was assessed using the Medication Adherence Rating Scale (MARS). Results: Of the 400 patients, 172 (43%) were nonadherent to their prescribed medications. There is a statistically significant association between the education (P = 0.001), number of drugs (P = 0.002), family income (P = 0.013), and nonadherence. Among the 172 patients, 33.5% were nonadherent to their therapy due to patient-related factors followed by drug-related factors (32%) and disease-related factors (31%). Conclusion: The overall incidence of medication nonadherence in patients with mental illness was 43%. Numerous factors contributed to medication nonadherence. Strategies need to be developed and implemented to enhance medication adherence, and thereby achieve a better therapeutic outcome in patients with mental illness.

KEY WORDS: Factors, incidence, mental illness, nonadherence, outpatients
adherence to psychotropic medications has been associated with relapse, significantly more psychiatric hospitalizations, emergency room visits, poorer mental functioning, lower life satisfaction, more disability-related absences from work, greater substance use, increased suicidal behavior, poorer adherence to medications for comorbid medical conditions, and increased health-care costs.  

Previous studies from developed countries attributed the reasons for nonadherence to antipsychotic medications including limited insight, low therapeutic alliance, presence of positive symptoms, comorbid substance abuse, unemployment, low social functioning, and side effects. Although there is a dearth of evidence on nonadherence from developing countries, studies from Africa reported that poverty, lack of family support, perspective of illness and stigma, lack of insight, failure to improve with treatment, and long queues when attending outpatient appointments were the important reasons for nonadherence. Meanwhile, developing countries in Asia reported that financial problems, distance from hospitals, social and cultural myths, illiteracy and lack of insight, and side effects were the reasons for nonadherence.

In general, there are well-established reports on the factors associated with medication nonadherence in general clinical practice in the Indian population. But there is a paucity of data on medication adherence in Indian psychiatric patients. This prompted us to study the incidence and factors associated with medication nonadherence in patients with mental illness.

Materials and Methods

Study settings and population

This cross-sectional study was undertaken in the outpatient psychiatric department of a tertiary care private hospital in South India over a period of 1 year from April 2012 to March 2013. Patients aged 18 years and above who presented with mental illness as diagnosed by the International Classification of Diseases (ICD)-10 and who were receiving at least one psychotropic medication for at least 1 month were included in the study. Patients of both genders irrespective of their marital status, educational level, socioeconomic status, and place of residence were included in the study. Patients were excluded from the study if they appeared intoxicated with drugs or alcohol or had a diagnosis of mental subnormality, or were deemed actively psychotic by the psychiatrist. Patients with cognitive deficit or acute psychosis or patients presenting for the first time (index visit) were also excluded from the study.

Ethical considerations

The study protocol was reviewed and approved by the Institutional Ethics Committee of JSS College of Pharmacy, Mysore, Karnataka, India and permission was also obtained from the hospital authority prior to the commencement of the study. Patients/caretakers were briefed about the study and their consent was obtained.

Measurement of adherence

The Medication Adherence Rating Scale (MARS) was used to assess the level of medication adherence in the study patients. The scale includes 10 items and examines adherence behavior and attitude toward medication during the past week with relatively simple scoring. Scoring less than 60% is considered as nonadherence to the medications.

Data collection procedure

Patients with mental illness who visited the psychiatric outpatient department were randomly screened by a 1-year trained psychiatric clinical pharmacist. Eligible subjects were included in the study and information pertaining to the sociodemographic details, diagnosis, and drugs were gathered. All the study patients were assessed for the level of medication nonadherence by using MARS. Since most of our study patients were illiterate, the trained clinical pharmacist administered each element of MARS to the patient in a language preferred by the patient. Those who were found to be medication nonadherent were asked to provide reason(s) for missing their medications. Open-ended responses were collected from patients for missing medications over the past week. Wherever the patients provided multiple reasons for medication nonadherence, further open questions were asked to the patients and caretakers to find out the major reason for nonadherence. In order to assess complete adherence, we included some additional self-reported measures of adherence like total number of missed doses over the last week, total number of missed medications for a full day in the last month, and change in the dose/frequency of the medications without the advice of the prescribing physician after the last follow-up visit.

Statistical analysis

All the collected data were stored in an Excel 2010 database and later imported into the Statistical Package for Social Sciences (SPSS) V21.0 software, for analysis. Chi-square test was used to find out the statistical significance of the reasons of medication nonadherence. P value less than 0.05 was considered as statistically significant.

Results

Of the 453 patients reviewed, 400 were included in the study. The mean age of the study population was 36.21 years (range: 18-84 years). In the study population, 55.2% (221) were females and 42.5% (170) of the study patients were diagnosed with depression. Approximately three-fourth of our study patients had no comorbidity (n = 302) and those who were taking their medication by themselves were 289 and illiterate were 24.2% (n = 97).

Among the 400 patients, 43% (172) were nonadherent to their prescribed psychotropic medications. There was no statistically significant association between gender, age, diagnosis, and nonadherence in this study (P > 0.05). One of the findings of our study was nonadherence among patients with a low level of education (P = 0.001). Among the 172 nonadherent patients, 61% were either illiterate or had a primary level of education while in the adherence group, approximately 57% had education above the secondary level. Another finding was the relation between the number of drugs and medication nvestigations.
adherence. A total of 63.15% of the patients who received less than two drugs were adherent to their medication (P = .002). The association of comorbidity, the person (patient/caretaker) involved in drug administration, and nonadherence was not statistically significant (P > 0.05). The duration of treatment had a statistically significant correlation with medication nonadherence (P = 0.02). Patients who were in the first 3 months of treatment were more likely to continue to take their medication than the others (31, i.e., 18.1%). Nonadherence had a significant association with the patient’s family income (P = 0.013). Demographic details of the study population are given in Table 1.

There are numerous reasons that influenced the adherence of the prescribed psychiatric medication regimen in this study. These were categorized into patient-related, medication-related, disease-related, and physician-related factors. Among the 172 patients, 33.3% (n = 58) were nonadherent to their therapy due to patient-related reasons followed by drug-related reasons (31.9%) and disease-related reasons (31%). The different factors affecting nonadherence are given in Table 2.

The patients’ personal obligations (n = 31, 18.02%) and adverse drug reaction (ADR) (n = 19, 11.04%) were the topmost reasons for nonadherence. In patient-related factors, the patient’s personal obligations (n = 31, 18.02%) and lack of family support (n = 11.63%) were the frequently reported reasons. Meanwhile, in medication-related reasons, ADRs (n = 19, 11.04%) and cost of the medications (n = 126.9) were the topmost reasons for medication nonadherence. Self-checking for the reappearance of the symptoms (n = 13, 7.5%) and a sense of better feeling (n = 12, 6.9%) were the most common disease-related reasons [Table 2].

Factors associated with medication nonadherence between males and females showed a significant difference (P = 0.004). Majority (63.7%) of the male patients were nonadherent to their medication due to patient-related factors while in females, the majority (70.3%) were nonadherent due to disease-related factors. The association of various factors of nonadherence with different diagnoses were significant (P = 0.03) while the associations with age, education, number of drugs, comorbidity, and duration of treatment were not. About 80% of the physician-related factors were identified in patients with anxiety, while 51% of the disease-related factors were seen in patients with depression. Details of the reasons for nonadherence, diagnosis, and gender are presented in Table 3.

**Table 1: Demographic details of the study population**

| Demographic details | Nonadherence group (n = 172) | Adherence group (n = 228) | P value |
|---------------------|-------------------------------|--------------------------|--------|
| Sex                 |                               |                          |        |
| Male                | 81 (47.09)                    | 98 (42.98)               | 0.419  |
| Female              | 91 (52.90)                    | 130 (57.01)              |        |
| Age (in years)      |                               |                          |        |
| 18-29               | 54 (30.13)                    | 78 (33.15)               | 0.176  |
| 30-39               | 57 (33.13)                    | 59 (25.57)               |        |
| 40-49               | 39 (22.67)                    | 46 (20.17)               |        |
| 50-59               | 12 (6.9)                      | 51 (13.59)               |        |
| ≥60                 | 10 (5.8)                      | 14 (6.1)                 |        |
| Diagnosis           |                               |                          |        |
| Depression          | 71 (41.27)                    | 99 (43.42)               | 0.507  |
| BPAD                | 22 (12.79)                    | 37 (16.22)               |        |
| Anxiety             | 28 (16.27)                    | 31 (13.59)               |        |
| Schizophrenia       | 9 (5.2)                       | 17 (7.4)                 |        |
| Others*             | 42 (24.41)                    | 44 (19.29)               |        |
| Education           |                               |                          |        |
| Illiterate          | 45 (26.16)                    | 52 (22.80)               | 0.001  |
| Primary             | 60 (34.88)                    | 43 (18.85)               |        |
| Secondary           | 34 (19.76)                    | 72 (31.57)               |        |
| Pre-university       | 11 (6.3)                      | 30 (13.15)               |        |
| University          | 22 (12.79)                    | 31 (13.59)               |        |
| Number of drugs     |                               |                          |        |
| 1-2                 | 82 (47.67)                    | 144 (63.15)              | 0.002  |
| 3-4                 | 76 (44.18)                    | 62 (21.79)               |        |
| ≥5                  | 14 (8.12)                     | 22 (9.6)                 |        |
| Comorbidity         |                               |                          |        |
| Yes                 | 42 (24.41)                    | 56 (24.56)               | 1.00   |
| No                  | 130 (75.83)                   | 172 (75.43)              |        |
| Administration      |                               |                          |        |
| Self                | 121 (70.34)                   | 168 (73.68)              | 0.499  |
| Relative            | 51 (29.51)                    | 60 (26.31)               |        |
| Duration of treatment (in months) |                   |                          |        |
| <3                  | 31 (18.02)                    | 68 (29.82)               | 0.028  |
| 4-6                 | 46 (26.44)                    | 56 (24.56)               |        |
| 7-12                | 55 (31.97)                    | 51 (22.36)               |        |
| >13                 | 40 (23.25)                    | 53 (23.24)               |        |
| Annual family income (in INR) |                   |                          |        |
| <50,000             | 112 (65.11)                   | 154 (67.54)              | 0.03   |
| 50,000-1,00,000     | 56 (32.55)                    | 55 (24.12)               |        |
| >1,00,000           | 4 (2.3)                       | 19 (8.3)                 |        |

Other diagnoses include: schizoaffective disorders (10), delusional disorders (10), somatoform disorders (13), conversion disorders (8), Dhat syndrome (6), acute stress disorder (6), dissociative disorder (6), personality disorders (2) and sleep disorders (5), psychogenic hiccups (3), anankastic traits (2), psychogenic vomiting (3), and drug-induced psychiatric disorders (12).

The incidence of nonadherence in psychiatric patients was high (43.3%) owing to several reasons including patient-related factors, disease-related factors, medication-related factors, and physician-related factors. This was linked to other studies.[3,18-20]

**Discussion**

Nonadherence to medication regimens is a serious problem. It has many serious effects on prognosis of the illness and overall effectiveness of the health system. Nonadherence may signal that the patient and physician differ over the goals and priorities regarding the treatment and its schedule. Increasing the effectiveness of adherence has a greater impact on the health of the population rather than implementing any improvement in specific medical treatments. Therefore, information regarding factors influencing the optimal use of medications is vital.
There were numerous factors that influenced the adherence of a prescribed psychiatric medication regimen in this study. Among the patient-related factors and also overall, the patient’s personal obligation (n = 31) was the most common reason for nonadherence that included, but was not limited to, traveling/festivals/family functions/family disputes/busy schedules. Along with these reasons, various social and cultural myths and beliefs regarding psychiatric conditions/medicines and the use of alternative medicine were important factors that contributed to nonadherence. Lack of support from their family (n = 11) was one of the most important reasons for the patients to discontinue treatment and follow-up. Various reasons were given for the decrease in family support including alcohol dependence, interpersonal issues with one’s partner or parents, and fulfilling work demands for family members.

It is well-documented that patients who are receiving direct care from the family members adhere well to therapy. Some participants of our study reported that they feared to take the medication (n = 8) as some constituents of the medication have a hot or cold effect on the body that results in a number of side effects, and use of these drugs may lead to addiction and dependence and chronic medication use is also a daily reminder of an unwanted illness. These myths are believed to be prevalent across all socioeconomic classes independent of the level of education. Two patients reported that they were not taking the medication as they were too busy with work.

The second most frequently reported reason for nonadherence was the side effects (n = 19) of the medications. Distressing ADRs that interfered with normal functioning of the patients such as stiffness of the neck, drooling of saliva, weakness, weight gain, sexual dysfunction, and daytime sleepiness have a crucial impact on nonadherence. Another drug-related reason in which the prevalence of medication nonadherence ranged 10-77%. There was no statistically significant association between the age, gender, and medication adherence in our study population. This finding was similar to the results of Fawad et al., while it contradicts the findings of Victoria O et al. in which the prevalence of medication nonadherence ranged 10-77%. There was no statistically significant association between the age, gender, and medication adherence in our study population. This finding was similar to the results of Fawad et al., while it contradicts the findings of Victoria O et al. in which the prevalence of medication nonadherence ranged 10-77%.

### Table 2: Reasons for nonadherence

| Categories of nonadherence | Reasons                        | Number (%) |
|---------------------------|--------------------------------|------------|
| Patient-related factors   | Patient’s personal obligations | 31 (18.02) |
| (n=58)                    | Lack of family support         | 11 (6.3)   |
|                           | Fear about the medications     | 8 (4.6)    |
|                           | Carelessness                   | 4 (2.3)    |
|                           | Nature of the job              | 2 (1.1)    |
|                           | Confusion                      | 2 (1.1)    |
| Medication-related factors| ADR                            | 19 (11)    |
| (n=55)                    | Cost                           | 12 (6.9)   |
|                           | Too many pills                 | 8 (4.6)    |
|                           | Nonavailability                | 7 (4.0)    |
|                           | Long duration                  | 7 (4.0)    |
|                           | Formulation                    | 2 (1.1)    |
| Disease related factors   | Self-checking for the          | 13 (7.5)   |
| (n=54)                    | reappearance of the symptoms   |            |
|                           | Feeling better                 | 12 (6.9)   |
|                           | Poor insight                   | 11 (6.3)   |
|                           | Forgetfulness                  | 9 (5.2)    |
|                           | No improvement                 | 4 (2.3)    |
|                           | Worsening of the conditions    | 3 (1.7)    |
|                           | Hopelessness                   | 2 (1.1)    |
| Physician-related factors | Lack of adequate instruction   | 2 (1.1)    |
| (n=5)                     | Nonavailability of psychiatrist| 3 (1.7)    |
|                           | during follow-up               |            |

### Table 3: Factors associated with nonadherence (diagnosis- and gender-wise)

| Parameters | Patient-related (n = 58) | Medication-related (n = 55) | Disease-related (n = 54) | Physician-related (n = 5) | P value |
|------------|--------------------------|-----------------------------|--------------------------|---------------------------|---------|
| Gender     |                          |                             |                          |                           |         |
| Male       | 37 (63.7)                | 25 (45.5)                   | 16 (29.62)               | 3 (60)                    | 0.004   |
| Female     | 21 (36.30)               | 30 (54.54)                  | 38 (70.7)                | 2 (40)                    |         |
| Diagnosis  |                          |                             |                          |                           |         |
| Depression | 22 (37.93)               | 21 (38.1)                   | 28 (51.85)               | 0                         | 0.039   |
| BPAD       | 10 (17.24)               | 7 (12.72)                   | 5 (9.2)                  | 0                         |         |
| Anxiety    | 7 (12.06)                | 8 (14.54)                   | 9 (16.6)                 | 4 (80)                    |         |
| Schizophrenia | 4 (6.8)                | 4 (7.2)                     | 1 (1.8)                  | 1 (20)                    |         |
| Others     | 15 (25.86)               | 15 (27.27)                  | 11 (20.3)                | 1 (20)                    |         |

*Only clinically significant parameters were considered*
for nonadherence was the cost of the psychiatric medicines \((n = 12)\). Although some patients could buy the medicine from local shops, the problem was nonavailability of psychiatric medicines in shops of remote areas \((n = 7)\). For many patients, long distance was another reason cited owing to the lack of a convenient mode of transport.

Nonadherence was observed in improved \((n = 13)\) medical conditions as well as in nonimproved \((n = 4)\)/worsening medical conditions \((n = 3)\). Some patients stopped taking medications for brief periods to determine whether there was a relationship between the medication and adverse effects or treatment effects. Stopping medications to test efficacy is especially common among patients whose symptoms are not active because they seek to determine whether continued use of the medication is necessary to suppress the symptoms. Patients’ lack of awareness \((n = 11)\) of having a mental illness and forgetfulness were the other barriers that were observed in our study. It is obvious that lack of insight led to refusal to take medications.

In our study, only five patients were nonadherent to therapy as their doctor did not explain the timing, dose, and duration of their medication adequately or completely. The psychiatrist also failed in adequately explaining the benefit of the prescription, possible side effects, time lag before the onset of treatment response, and the consequence of nonadherence. Patients also reported the absence of their psychiatrist on the day of their consultation as the reason for their nonadherence.

There were quite a few limitations in this study. Medication adherence was measured using a self-reported behavioral measure. Adherence to medications is overestimated by this method as we did not use an objective method, such as pill count, to confirm the accuracy of self-reported medication adherence. There is a chance of information bias as people with psychosis are less likely to give accurate information about nonadherence compared to physically ill patients. As the study is from a single center and involved a smaller sample size, the study findings could not be generalized.

**Conclusion**

Incidence of nonadherence in psychiatric patients was 43%. Patient-related and drug-related reasons were the two most prevalent causes of medication nonadherence. Strategies need to be developed and implemented to address those variables in order to enhance medication adherence, and thereby achieve a better therapeutic outcome in psychiatric patients.

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**Conflict of interest**

There are no conflicts of interest.

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Lucca, et al.: Factors of medication nonadherence in psychiatry

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