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A COMPARATIVE STUDY OF MEDICATION NON-COMPLIANCE AMONG PATIENTS WITH PSYCHIATRIC DISORDERS IN URBAN AND RURAL POPULATIONS

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ABSTRACT
Mental illnesses like other somatic diseases are severe medical conditions where most of them are easily manageable through the use of drugs and some of them can be cured completely. The issue arises when a patient fails to follow the doctor's instructions on the dosage and timing of the drugs resulting in interruption of the regimen and subsequent worsening of the diseases. Today, a lot of people experience chronic mental health conditions due to the lack of adherence to prescribed medicines. A Prospective, observational, comparative research and a closed questionnaire-based study of 98 non-compliant patients who met the consideration criteria attending the O.P.D. units of the Hospital for Mental Health, Shahibaug, was conducted. The information was collected through a semi-structured sociodemographic proforma and a standardized medication adherence reporting scale (MARS-5). **Results:** The compliance score was diversified into 3 categories: High, Medium, and Low compliance. In the entire sample, there were no patients who indicated High compliance with medications. However, about **47.96%** of patients had Low compliance and **52.04%** of patients had Medium compliance with medications. In the urban population, about **48.94%** of patients had Low compliance and about **50.98%** of patients had medium compliance with medications. In the rural population, there were about **51.06%** of patients with Low compliance and about **49.02%** of patients had Medium compliance with medications. **Conclusion:** Based on the preparatory revelations, a number of steps need to be considered to advance compliance in psychiatric patients. In conclusion, the study's findings reveal a noteworthy contrast in medication non-compliance between urban and rural populations among patients with psychiatric disorders.

KEYWORDS: Psychiatric disorders, Mental Illness, Non-compliance, Non-adherence.

INTRODUCTION
Psychiatric disorders, also known as mental illnesses, are conditions that affect an individual's thoughts, feelings, and behaviors, affecting their daily functioning, relationships, work, and overall quality of life. They are characterized by clinically significant behavioral or psychological syndromes or patterns associated with distress, disability, or impairment in social, occupational, or other important areas of functioning, as per the Diagnostic and Statistical Manual of Mental Disorders IV.[1]

Medication non-compliance is a significant contributor to the growing prevalence of chronic mental disorders and is crucial in both developed and developing nations. It affects all patient populations, from children to elderly patients and all chronic disease states.

Compliance with medication refers to the extent to which a person's behavior, including taking medication, following diets, and implementing lifestyle changes, aligns with medical and health advice.[2]

Various definitions have been used to describe non-compliance, including failure to take medication, taking a different dose than prescribed, and premature termination of medication. This issue affects patients of all ages and chronic disease states, and its impact is significant in both developed and developing nations.[3,4]

The success of every therapeutic regimen depends on the compliance of the individual involved. Ensuring patient compliance with treatment and clinical appointment schedules is a major challenge in psychiatry and general medicine.[5,6] When it comes to psychiatry, it becomes all the more important as psychiatric illnesses, which

generally by its nature impair insight and judgment, especially psychotic illness which places psychiatric patients more at risk of deviating from the prescribed forms of drug treatment, thus making them medication non-compliant.[7]

Non-compliance with medication is a significant issue in chronic mental illness, affecting patients, their families, and the healthcare system.

In terms of refill rate, Jim Rosack[8] elaborated on medication adherence. The refill rate measures how well a patient follows the prescribed medication by calculating the ratio of days of proper adherence to the total days of advice. Individuals with a refill rate of only 50 percent of what was expected were labeled as 'non-adherent' patients. The individuals who obtained prescriptions spanning from 50 to 80 percent were labeled as "partially adherent". Individuals who obtained medication prescriptions within the 80 to 110 percent range were referred to as 'adherents', whereas those who exceeded 110 percent when filling their prescriptions were labeled as 'excess fillers'.

Patients with psychiatric disorders may moreover experience challenges in recognizing the need for medication or may be irresolute about its benefits. Furthermore, the side effects related to psychiatric medications can be upsetting, driving a few patients to cease treatment to maintain a strategic distance from these undesirable effects.

In prior research by Delaney et al,[9] Caton et al,[10] Adams et al,[11] it was discovered that patients with major psychiatric illnesses who did not comply with their medication had a higher likelihood of experiencing relapse, rehospitalization, and unfavorable outcomes. This non-compliance was strongly associated with factors such as their specific diagnoses, age, gender, marital status, level of education, and employment status.

Chapman[12] in his research article stated that evidence for the impact of nonadherence on outcomes for psychiatric patients has been consolidated within new research. Nonadherence has been found to predict poorer outcomes for patients, including hospital admission[12.13,14], violence[12,15], suicide, and premature mortality.

San et al.[12,14] analyzed the medical records of patients with schizophrenia or schizoaffective disorder admitted to acute care. Of the 1646 patients on whom data were available, 58.6% of patients the main reason for hospital admission was listed as nonadherence.

Measuring non-compliance to medication, particularly in patients with psychiatric ailments, in India is not an easy job. The patients and their relatives discover the doctor is all-powerful and denies non-compliance.

Kalucha et al,[18] and Sultan et al,[19] in a study stated that the most common psychiatric diagnosis where non-compliance is observed is Schizophrenia with a prevalence of noncompliance of 46.70% and 45.16%, respectively.

India has a vast population of more than 1.44 billion, and psychiatric disorders are seen in various age groups, genders, socioeconomic backgrounds, and geographical distributions.

In the year 2023, we recognize the significance of mental health and the increasing prevalence due to a variety of factors, such as a lack of knowledge of the disease and its psychoeducation, cognitive impairments such as forgetfulness, the patient's distance traveled for subsequent appointments, their marital status, educational background, cultural biases, age, gender identity, and employment status. These factors can be remedied if the patient is aware of the disorder they are experiencing.

The challenges faced by rural populations concerning mental health care and psychiatric disorders often vary essentially from those encountered by urban counterparts. Urban areas typically have more mental health professionals and facilities, giving more prominent access to care compared to rural regions. This abundance of assets in urban settings for the most part results in shorter holds up for appointments and a more extensive range of specialized services accessible to residents.

While urban areas may have more mental health experts overall, they may also encounter aberrations in access to care based on financial components. Low-income urban neighborhoods may have fewer mental health assets and higher rates of unmet mental health needs compared to wealthier ranges.

There have been studies conducted among patients who are non-compliant with medications in other countries and in India based on their demographics. However, studies based on the patients' urban and rural population criteria are very few available from India.

Considering the paucity of data from India and to determine the prevalence of medication non-compliance in the Urban and Rural populations, this study was conducted.

MATERIALS AND METHODOLOGY

An Institutional-based prospective, cross-sectional, observational, non-experimental, comparative study design and a close-questionnaire-based survey of 98 non-compliant patients conducted attending the outpatient department of the Hospital for Mental Health (HMH), Shahibaug, for 3 months were adopted for the present study.

The study complied with the ethical principles outlined in the Declaration of Helsinki and received approval from the Institutional Review Board (IRB) and the data for the above-mentioned study was collected after obtaining written permission from the Institutional Ethics Committee (IEC) of the Gujarat Institute of Mental Health.

An Informed Consent Form from the Patient, a significant caregiver of the patient, and a Formal permission letter from the head of the Institution were also obtained to conduct the study.

The sample of Ninety-eight (98) non-compliant patients were identified using their clinical records out of which forty-nine (49) patients were from urban areas and forty-nine (49) patients were from rural areas.

Sample size calculation

A study from South India found that about sixty-four percent (64%) of the total selected population had non-compliance with their medication.[22]

The sample size is determined by using the Sample Size formula for proportion which is as follows:

$$n = \frac{Z^2 P(1-P)}{d^2}$$

If we further calculate the sample size by putting in the values as,

Z = 90% or 1.645; P = 64% or 0.64; d = 10% or 0.10

$$n = \frac{(1.645)^2 \,.\, 0.64 \,.\, (1-0.64)}{(0.10)^2}$$

n = 98

Inclusion criteria

People with any mental illness diagnosed and stable according to the DSM-IV criteria between the age group of 18 to 65 years with ongoing therapy with psychiatric medication with ≥ 6 months visiting the site were included in the study. The patients with a willingness to participate in the study were only included.

Exclusion criteria

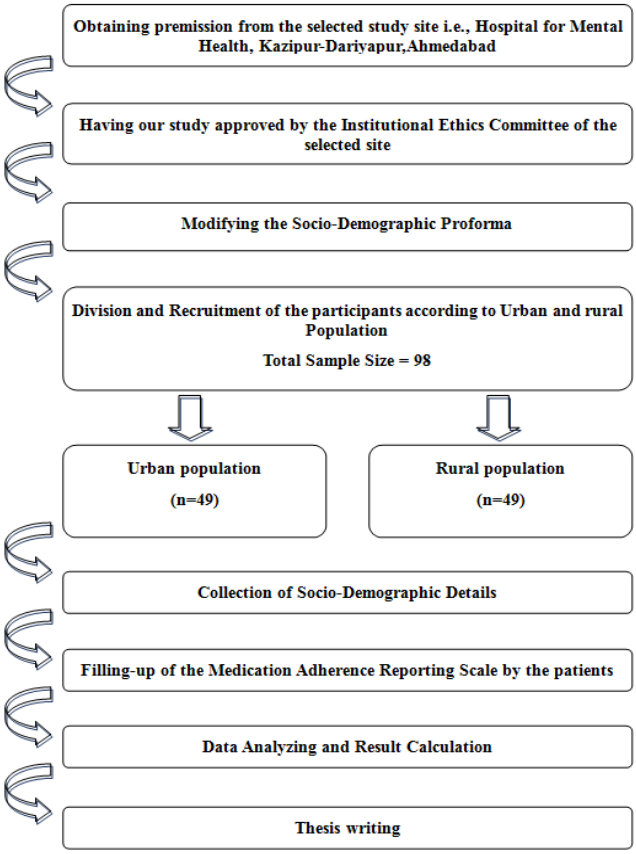
The patients who were <18 years and >65 years of age and in their acute stage of illness were excluded from the study. Also, the patients who did no give their consent before collecting their information were excluded.

Withdrawal criteria

The patients were allowed to withdraw amid the research without any questions or contentions. In case the patient becomes sick during the session, he or she may withdraw at any minute through the survey.

The data was collected through a sociodemographic proforma which included the patient's details and medical and medication history. The compliance of patients to the medication was assessed with the help of the Medication Adherence Reporting Scale (MARS-5) which categorizes patient adherence into low, medium, and high adherence with scores of 5 to 14, 15 to 19, and 20 to 25 respectively. The MARS-5 consists of 5 questions with 5 responses each.

Study procedure



RESULTS

The results of the study between the urban and rural populations were divided into two categories: Socio-demographic details of the patients and Assessment of the socio-demographic details according to the categories of compliance score.

Table 1: Sociodemographic Details of the Patients.

Socio-demographic details of the patients			
Rural		**Urban**	
Age groups			
18 to 25	7	18 to 25	7
26 to 35	12	26 to 35	7
36 to 45	14*	36 to 45	12
46 to 55	9	46 to 55	16*
56 to 65	7	56 to 65	7
Gender			
Female	22	Female	18
Male	27*	Male	21*
Educational Qualification			
Primary	28*	Primary	17
Secondary	19	Secondary	19*
Tertiary	2	Tertiary	13
Immigration Status			
Immigrant	40*	Immigrant	5
Native	9	Native	44*
Employment Status			
Full-time	9	Full-time	10
Part-time	9	Part-time	13
Retired	1	Retired	2
Unemployed	30*	Unemployed	24*
Socioeconomic Status			
Lower	5	Lower	4
Lower Middle	11	Lower Middle	8
Middle	24*	Middle	22*
Upper Middle	5	Upper Middle	8
Upper	4	Upper	7
Diagnosis			
BMD	10	BMD	6
MDD	10	MDD	14
OCD	5	OCD	2
Schizophrenia	21*	Schizophrenia	22*
Others	2	Others	5
Date of Diagnosis			
6 months to 5 years	25*	6 months to 5 years	29*
5 to 10 years	16	5 to 10 years	14
More than 10 years	8	More than 10 years	6
Substance Use			
Non-users	33*	Non-users	32*
Users	16	Users	17

(Denotes the highest number of patients occurring in the respective groups of urban and rural populations).*

In the entire sample (n=98), there were no patients identified with high compliance (patients with a compliance score between 20 to 25) to medication.

Table 2: Assessment of Demographics according to MARS-5.

Assessment of Demographics according to MARS-5				
	Rural		**Urban**	
Age groups	5 to 14	15 to 19	5 to 14	15 to 19
18 to 25	3	4	3	4
26 to 35	9*	3	4	3
36 to 45	6	8*	7*	5
46 to 55	4	5	6	9*
56 to 65	2	5	3	4

Gender				
Female	9	13*	9	9
Male	15*	12	14*	17*
Education				
Primary	13*	15*	6	11*
Secondary	9	10	12*	7
Tertiary	2	0	5	8
Immigration Status				
Immigrant	21*	19*	3	2
Native	3	6	20*	24*
Employment				
Full-time	6	3	5	5
Part-time	5	4	7	6
Retired	0	1	1	1
Unemployed	13*	17*	10*	14*
Socio economic Status				
Lower	2	3	1	3
Lower Middle	4	7	2	6*
Middle	12*	12*	17*	5
Upper Middle	3	1	1	6*
Upper	3	2	2	6*
Diagnosis				
BMD	6	4	2	4
MDD	4	6	7	7
OCD	3	2	2	0
Others	1	2	3	2
Schizophrenia	10*	11*	9*	13*
Date of diagnosis				
6 months to 5 years	13*	13*	13*	16*
5 to 10 years	8	10	8	6
More than 10 years	6	2	2	4
Substance Use				
Non-users	14*	19*	16*	16*
Users	10	6	7	10

(Denotes the highest number of patients occurring in the respective groups of urban and rural populations).*

DISCUSSION

In the rural population, the age group of 36 to 45 had the highest prevalence of non-compliance with 28.57%. While, in the urban population, the age group 46 to 55 had the highest prevalence of non-compliant patients with 32.65%.

Most of the patients in the rural population were male (55.10%) and the urban population also had a higher prevalence of male patients (63.27%) who were non-compliant with medication.

The majority of the patients with non-compliance had a primary level of education (57.14%). Unlike the rural population, the non-compliant patients in the urban population had a secondary level of education (38.78%).

The greater number of patients were immigrants (81.63%) in the rural population. In contrast, the patients who were native to the place in the urban population had a higher rate of non-compliance (89.80%) than the immigrants.

There were 61.22% of unemployed patients in the rural population and there were 48.98% of unemployed patients in the urban population had high rates of non-compliance Patients from the middle socioeconomic class were seen the most in the rural population with a diagnosis of schizophrenia (42.86%). While in the urban population, the patients from the middle socio-economic class (44.90%) and patients with a diagnosis of schizophrenia (44.90%), which was also seen in the rural population, had poor compliance with medications 67.34% of patients had no history of substance use and with a recent diagnosis (53.06%) i.e. 6 months to 5 years in the rural population. In the urban population, 65.31% of patients with non-compliance had no history of substance use and with a recent diagnosis i.e. 6 months to 5 years (59.18%) which was concurrent with the rural population.

Summary of the entire sample population

Middle-aged patients (36 to 45) in the present study had poor compliance when compared to younger patients (<35 years) and older patients (>45 years). This finding was in contrast with the study done by Schwartz et al. in

2018[17] who observed that older patients have more problems with compliance which is often attributed to complicated prescription practices and memory impairment, both of which were not significant in the present study.

Male patients in the present study were less compliant than female patients, which is in contrast with the previous study done by Sultan et al. in 2014.[15]

In the present study, patients with low or primary levels of education had poor compliance with medication. Lim et al[18] in a study found a positive association of education with compliance.

The Natives show poor compliance with medications. Unemployed patients in the present study had poor compliance with medications. It can be because of low educational qualification, as high educational qualification obviously promotes insight into illness.

Schizophrenia was the most common diagnosis in patients with poor compliance (43.88%). Kalucha et al[16] and Sultan et al[15] in a study expressed that the foremost common psychiatric diagnosis where non-compliance is observed is Schizophrenia with a predominance of 46.70% and 45.16%, respectively.

The present study found that poor compliance was seen in patients from the middle socio-economic class, which was in contrast with a previous study done by Rao et al. in 2017.[19] The patients with a recent diagnosis i.e. 6 months to 5 years had the highest prevalence for non-compliance (56.12%).

In a study done by Sparr et al[20], it was highlighted that patients with substance use are significantly more likely to miss appointments. In contrast with the previous study, the present study showed that the patients with no history of substance use had poor compliance which was also observed in the study done by Sultan et al.[15]

CONCLUSION

The patients may relapse and have to be re-hospitalized if they do not take their medicines according to the prescription.

In this study, it was noted that non-compliance with taking drugs was high among males aged 36-45 years who had only completed primary school or lower, were unemployed, and belonged to the middle socio-economic class. Schizophrenia was the most common mental disorder found in the sample. Based on these initial findings, several measures should be considered to improve adherence among psychiatric patients.

Further analysis by age groups shows that older people living in towns tend more towards non-adherence than younger ones do. Meanwhile, sex, level of education, and income status may influence whether someone follows medical instructions or not but these factors' effects differ from one region type (urban/rural) to another.

Such interventions need to be tailored so as to foster drug compliance for such special groups. This therefore highlights the need for population-specific interventions aimed at promoting adherence to medicines in psychiatric care settings.

It is also important that patients and caregivers/family members should be provided with information in simple language regarding their illness and the drugs prescribed for it. The family members need to know about side effects as well as desired outcomes therefore they must have this information communicated at their level of understanding too. Selling medications at affordable prices can also increase their uptake by clients.

In rural areas, immigrant populations with low levels of education among them primary shall need more attention while interventions targeting unemployed people shall be majorly required in these regions as opposed to urban settings which may focus on certain middle-class issues besides considering natives who have attained secondary education.

Both settings would benefit from considering the high prevalence of schizophrenia, the lack of substance use history among non-compliant patients, and the relatively recent diagnoses of their psychiatric conditions.

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