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## Research Article

## Medication Adherence and Medication safety practices among patients with chronic illnesses

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### Abstract:

**Background:** Medication adherence and medication safety are foundational pillars of effective chronic illness management. Chronic illnesses such as diabetes mellitus, hypertension, chronic obstructive pulmonary disease (COPD), asthma, cardiovascular disease, and chronic kidney disease represent a persistent and growing challenge to global health systems. These diseases are lifelong conditions that require sustained treatment, behavioral modification, and regular follow-up. However, adherence to prescribed medications remains a critical issue that undermines therapeutic success and increases the burden on health systems worldwide. **Methods:** The study was conducted among 250 patients diagnosed with chronic illnesses such as diabetes, hypertension, asthma, and heart disease. A purposive sampling technique was used to select the participants who met the inclusion criteria. Data were collected using three tools: a demographic proforma, the Morisky Medication Adherence Scale (MMAS-8), and a self-structured Likert scale on medication safety practices. The collected data were analysed using both descriptive and inferential statistics. Descriptive statistics such as frequency, percentage, mean, and standard deviation were used to describe adherence and safety levels, while inferential statistics such as Karl Pearson's correlation and Chi-square test were used to find relationships and associations. **Results:** According to the distribution of demographic variables, the majority of the patients (51.6%) were above 50 years of age and most (56%) were female. Nearly half of the participants (46.8%) had no formal education and 50% belonged to families earning between 10,001 and 20,000 per month. The majority of the patients (97.2%) received medication information from doctors, and most (54.4%) resided in urban areas. Regarding medication adherence, 89.6% of the participants exhibited high adherence, 9.2% showed medium adherence, and only 1.2% had low adherence to their prescribed medications. **Conclusion:** The present study was undertaken to assess the relationship between medication adherence and medication safety practices among patients with chronic illnesses. The findings revealed that most patients exhibited high medication adherence and good medication safety practices. The study also established a statistically significant correlation between adherence and safety practices, indicating that both are interdependent components of effective chronic disease management. This implies that patients who consistently follow their prescribed treatment regimens are also more likely to store, handle, and administer medicines correctly. The study concluded that promoting medication adherence and safety through patient education, counseling, and regular follow-up can significantly reduce medication errors and improve treatment outcomes. Hence, the study confirms that strengthening adherence and safety awareness through continuous nursing interventions will enhance the quality of care, minimize complications, and improve the overall wellbeing of patients with chronic illnesses.

**Keywords:** Medication adherence, Medication safety practices, Chronic illness, Patient safety, Nursing care

### INTRODUCTION

The global health landscape has shifted significantly over the past century, with **Non-Communicable Diseases (NCDs)** replacing infectious diseases as the leading cause of illness and death worldwide. NCDs are chronic, non-infectious conditions that progress slowly and require long-term management. The major types include cardiovascular diseases, cancers, chronic respiratory diseases, and diabetes (World Health Organization, 2021). Unlike acute illnesses that can often be cured, these conditions demand lifelong care through healthy lifestyle practices and continuous medication use. Pharmacological treatment remains the cornerstone of disease management, making medication adherence essential for achieving positive health outcomes (Centers for Disease Control and Prevention, 2022). However, adherence is influenced by multiple factors, including patients' beliefs, socioeconomic conditions, healthcare access, and the quality of communication with healthcare providers. Ensuring patient safety and effective medication management is therefore fundamental to improving treatment adherence and preventing avoidable complications (Aldardeir et al., 2025; Jagpal et al., 2022).

### NEED FOR THE STUDY

Chronic illnesses such as diabetes, hypertension, cardiovascular diseases, and respiratory disorders require lifelong medication adherence for effective management.

However, poor adherence and unsafe medication practices remain major obstacles to achieving optimal treatment outcomes, leading to preventable complications, increased hospitalizations, higher healthcare costs, and premature deaths. Globally, nearly half of patients with chronic diseases do not take their medications as prescribed, while medication-related problems account for a substantial proportion of avoidable hospital admissions (World Health Organization, 2023). In India, where non-communicable diseases are the leading cause of mortality, medication non-adherence is common among patients with chronic illnesses, highlighting the need for strengthened medication safety and adherence strategies to improve long-term health outcomes (Indian Council of Medical Research, 2024).

### MATERIALS AND METHODS

A Quantitative research approach with a descriptive cross-sectional research design was employed to assess medication adherence and medication safety practices among patients with chronic illnesses. The study was conducted in the outpatient departments and chronic disease clinics of selected hospitals in Chennai. A total of 250 patients diagnosed with chronic illnesses were recruited using a purposive sampling technique. Participants included patients with diabetes mellitus, hypertension, cardiovascular diseases, asthma, and

chronic kidney disease who met the eligibility criteria. Inclusion criteria included patients aged 18 years and above, diagnosed with a chronic illness for at least six months, currently receiving prescribed medications, and willing to participate in the study. Patients who were critically ill, had cognitive impairment, or were unwilling to participate were excluded from the study.

Ethical approval was obtained from the Institutional Ethics Committee of Dr. M.G.R. Educational and Research Institute. Written informed consent was obtained from all participants prior to data collection, and confidentiality and anonymity of the collected information were maintained throughout the study.

### DATA WERE COLLECTED USING THREE INSTRUMENTS:

**Morisky Medication Adherence Scale (MMAS-8):** A standardized 8-item scale used to assess the level of medication adherence among patients with chronic illnesses. **Medication Safety Practices Scale:** A self-structured Likert scale developed by the investigators to assess medication safety practices, including medication storage, adherence to prescribed dosage and timing, checking medication labels, awareness of side effects, avoidance of self-medication, and reporting of adverse drug reactions.

Data collection was carried out through direct interviews and questionnaire administration. The collected data were analyzed using descriptive and inferential statistics. Descriptive statistics such as frequency, percentage, mean, and standard deviation were used to describe demographic variables, medication adherence, and medication safety practices. Inferential statistics including Karl Pearson's correlation coefficient were used to determine the relationship between medication adherence and medication safety practices, while the Chi-square test was used to assess the association between selected demographic variables and study outcomes. Statistical significance was considered at  $p < 0.05$ .

### RESULTS

In this study, the majority of the samples according to demographic variables showed that 129 (51.6%) of the patients were above 50 years of age, and most of them 140 (56%) were females. With regard to education, 117 (46.8%) had no formal education, and 79 (31.6%) were private employees. Concerning income, 125 (50%) of the participants earned between 10,001-20,000 per month. The majority (93 patients; 37.2%) had diabetes as their chronic illness, and 66 (26.4%) had hypertension. Most patients (97.2%) received their medication information from doctors, and 136 (54.4%) resided in urban areas. These findings indicate that the majority of patients with chronic illnesses were older adults with limited education and moderate income, reflecting typical demographic characteristics of chronic illness populations in India.

### DISCUSSION

In this study, the majority of the samples according to demographic variables showed that 129 (51.6%) of the patients were above 50 years of age, and most of them 140 (56%) were females. With regard to education, 117 (46.8%)

employees. Concerning income, 125 (50%) of the participants earned between 10,001-20,000 per month. The majority (93 patients; 37.2%) had diabetes as their chronic illness, and 66 (26.4%) had hypertension. Most patients (97.2%) received their medication information from doctors, and 136 (54.4%) resided in urban areas. These findings indicate that the majority of patients with chronic illnesses were older adults with limited education and moderate income, reflecting typical demographic characteristics of chronic illness populations in India.

The findings of the present study revealed that among the study participants, 224 (89.6%) patients had high medication adherence, 23 (9.2%) had moderate adherence, and 3 (1.2%) had low adherence to their prescribed medications. This indicates that the majority of patients followed their medication regimen regularly and understood the importance of adherence in controlling chronic illnesses. The high level of adherence observed may be attributed to regular hospital visits, continuous medical supervision, and effective patient education, as 243 (97.2%) patients reported receiving information regarding their medications directly from doctors. These findings suggest that adherence is strongly influenced by ongoing healthcare support and patient-doctor interaction.

The above findings are supported by Kretchy et al. (2020), who conducted a cross-sectional study on medication management and adherence among patients with chronic illnesses. Their study reported that 78.4% of patients demonstrated high medication adherence, while 16.2% showed moderate adherence and 5.4% had low adherence. Patients who received regular counseling from healthcare professionals showed a significantly higher mean adherence score ( $7.6 \pm 1.2$ ) compared to those with minimal follow-up ( $5.1 \pm 1.8$ ), and the difference was statistically significant ( $p < 0.05$ ). Furthermore, adherence levels were notably higher among patients who received medication instructions directly from physicians (81.9%) compared to those relying on non-professional sources (63.5%). The authors concluded that continuous counseling, regular follow-up, and strong patient-provider relationships play a crucial role in improving medication adherence among patients with chronic illnesses.

The findings of the present study revealed that there was a mild negative correlation ( $r = -0.341$ ,  $p < 0.05$ ) between medication adherence and medication safety practices, which was statistically significant. This indicates that as medication adherence increased, unsafe medication practices decreased. In other words, patients who strictly followed their prescribed medication regimens were more likely to engage in safe practices such as correct dosage administration, checking medication labels and expiry dates, proper storage of medicines, and avoidance of missed or duplicated doses. This finding highlights that medication adherence and medication safety practices are closely interrelated and mutually reinforcing components of effective chronic illness management.

The findings of the present study revealed that there was no statistically significant association between most selected demographic variables such as age, gender, educational status, occupation, and income with medication adherence and medication safety practices at the  $p < 0.05$  level. This indicates that adherence and safety behaviors were not strongly influenced by patients' socio-demographic characteristics. However, patients who received medication-related information directly from doctors demonstrated comparatively better medication adherence and safer medication practices than those who depended on other sources such as pharmacists, family members, or media.

### CONCLUSION

The present study concluded that there is a statistically significant medication adherence and medication safety

practices among patients with chronic illnesses. The findings indicate that patients with higher adherence levels are more likely to engage in safe medication practices, leading to improved therapeutic outcomes and reduced complications. The study also revealed that demographic factors such as age, gender, and education did not significantly affect adherence or safety, suggesting that patient education and healthcare engagement are more influential determinants. Overall, the study emphasizes the importance of continuous patient education, effective communication, and adherence counseling in chronic disease management. Enhancing these aspects will help ensure medication safety, improve quality of care, and contribute to better health outcomes among patients with chronic illnesses.

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**Table 1: Frequency and percentage distribution of level of medication adherence and medication safety practices among patients with chronic illnesses (n=250)**

| Variables                                   | F   | %    |
|---------------------------------------------|-----|------|
| <b>Level of Medication Adherence</b>        |     |      |
| High adherence (<6)                         | 224 | 89.6 |
| Medium adherence (6–7)                      | 23  | 9.2  |
| Low adherence (8)                           | 3   | 1.2  |
| <b>Level of Medication Safety Practices</b> |     |      |
| Good medication safety practice (47–60)     | 213 | 85.2 |
| Moderate medication safety practice (34–46) | 37  | 14.8 |
| Poor medication safety practice (20–33)     | 0   | 0    |

**Table 2: Correlation between medication adherence and medication safety practices among patients with chronic illnesses (n=250)**

| Variables            | Mean  | S.D  | <b>Karl Pearson's Correlation "r" &amp; p-value</b> |
|----------------------|-------|------|-----------------------------------------------------|
| Medication adherence | 3.08  | 1.89 | r = -0.341                                          |
| Medication safety    | 51.10 | 5.14 | p = 0.0001, S*                                      |

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