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A descriptive study to assess drug compliance among patients with hypertension attending various outpatient departments of a tertiary care hospital of South Mumbai

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Abstract

Background: In India, the prevalence of hypertension is significantly increasing, resulting in an epidemic India, a developing nation, has a special issue with treatment compliance, which poses a major danger to morbidity and death. The main objective of the study was to access the drug compliance among patients with hypertension.

Materials and Methods: A cross-sectional descriptive study was conducted at a tertiary care hospital in Maharashtra. Totally, 50 participants were selected for the study using Purposive Sampling technique. A self-structured questionnaire of Sociodemographic data was prepared and validated by the experts from the field of medicine, nursing, research and statistics and a standardized tool MMAS-8 was used in the study. Assessment score was used to collect the data.

Results: Out of the 50 study participants, 18 participants (36%) were found to have low adherence to antihypertensive drugs with a score of less than 6, 18 participants (36%) were found to have medium adherence to antihypertensive drugs with a score between 6-8 and 14 participants (28%) were found to have high adherence to antihypertensive drugs with a score of 8 on the Morisky 8-item medication adherence scale.

Conclusion: The purpose of this research paper was to assess and educate about the drug compliance among hypertensive patients. Based on the analysis concerned, it can be concluded that (36%) of the population has a low drug compliance in taking the anti-hypertensive medications. Drug compliance is important among patients with hypertension for improvement their condition, to maintain a normal healthy lifestyle and to prevent any complications.

Keywords: Hypertension, drug compliance, medication adherence, antihypertensive therapy

Introduction

Lifestyle disorders, also known as non-communicable diseases, are health conditions mainly caused by daily habits and behaviors. Common examples include heart disease, stroke, diabetes, obesity, and certain cancers. Hypertension, or high blood pressure, is a leading lifestyle disorder and is often called a "silent killer" because it usually shows no symptoms but can cause serious complications like heart attacks and strokes. Its prevalence is steadily increasing, particularly in developing countries, making it a major public health concern. Factors contributing to hypertension include genetics, unhealthy diet, physical inactivity, and stress [1]. A survey in India (2019-2021) showed hypertension affected 22.4% of adults aged 18-39, 54.5% of those 40-59, and 74.5% of those 60 and above [2]. Adherence to antihypertensive medication is crucial for effective management. Simpler medication regimens improve adherence, while complex, multi-pill schedules can lower it. Higher income supports better access to medicines, whereas financial difficulties can lead to skipped doses. Living with supportive family members, easy access to healthcare facilities, and regular follow-ups also help patients stay consistent with their treatment, reducing the risk of severe complications.

Background

In 2023, studies have shown that drug adherence among hypertensive patients remains a significant challenge.

Globally, about 54% of adults with hypertension are diagnosed, with 42% receiving treatment, and only 21% having their hypertension controlled [3]. Drug compliance is crucial for the effectiveness of medical treatments. Proper drug compliance helps in preventing the progression of diseases and reduces the risk of developing additional health issues. Drug compliance plays a pivotal role in reducing both mortality and morbidity rates in patients with hypertension. From an economic perspective, drug compliance can significantly reduce healthcare costs. In India, approximately 41% of patients with hypertension regularly attend medical OPD appointments. Additionally, over 70% of hypertensive adults are living with at least one other comorbid condition, such as diabetes or dyslipidemia.[4] Non-compliance often leads to worsening health conditions, which in turn can result in more frequent hospital visits, longer hospital stays, and the need for additional treatments. By adhering to their medication regimens, patients can avoid these unnecessary expenses and contribute to a more efficient healthcare system.

A cross-sectional study conducted among 379 hypertensive patients attending the Outpatient Clinics in the University of Uyo Teaching Hospital revealed that 85.2% were adherent to antihypertensive medications but only 14.2% showed good adherence. The study suggested that health care providers should pay more attention to their patient's drug adherence and educate them on medication adherence [5].

Materials and Methods
The study adopted a quantitative research strategy as its research methodology. The study's objective is to evaluate the medication adherence of hypertensive patients. A Non-Experimental Descriptive (survey) research design was used in this study. The research setting in this study was a tertiary care hospital in South Mumbai. Sample population of this study was patients with hypertension attending various outpatient departments of the tertiary care hospital of South Mumbai. For the study, a total sample size of fifty was used. Purposive convenient sampling was the method of sampling employed in this investigation. For two days, pilot research was carried out. A self-structured questionnaire of Sociodemographic data was prepared and a standardized tool MMAS-8 was used in the study. Assessment score was used to collect the data. Out of the 50 study participants, 18 participants (36%) were found to have low adherence to antihypertensive drugs with a score of less than 6, 18 participants (36%) were found to have medium adherence to antihypertensive drugs with a score between 6-8 and 14 participants (28%) were found to have high adherence to antihypertensive drugs with a score of 8 on the Morisky 8item medication adherence scale.

Results
1. **Section I:** Discussion of socio-demographic variables
2. **Section II:** Discussion related to drug adherence
3. **Section III:** Discussion related to association of sociodemographic variables with the level of drug adherence

Section I: Discussion related to Socio-demographic variables
Among 50 participants who were enrolled in the study, a clear majority comprising of (48%) were over the age of 70 years, (10%) belonged to the age group of 41-50 years, (4%) belonged to the age group of 51-60 years and (38%) belonged to the age group 61-70 years. Almost half (52%) were males and (48%) were females. (36%) of the participants have received secondary level of education, (26%) have received primary level of education, (18%) were graduates, (14%) have received senior secondary level of education and only (6%) were found to be illiterate. Noticeably, all the study samples were married (100%). Almost half (52%) were taking antihypertensive drugs since1-5 years, (18%) subjects more than 15 years, (16%) subjects since past 6-10 years and (14%) since past 11-14 years. (52%) of participants followed single drug regimen, (38%) followed two drug regimens, (8%) of participants followed three drug regimens whereas (2%) of the participants followed a regimen of more than 3 drugs. More than half (66%) of the study samples have cohabitation in nuclear families, (22%) lived in joint families and (12%) lived alone. Majority of the study samples (68%) availed medical facilities available in less than 5 kms of distance from their residence. (90%) of the study samples had comorbidities along with the selected disease condition(hypertension). (36%) of the study samples had an income ranged between ₹41,000-60,000, (32%) had an income ranged between ₹20,000-40,000, (18%) had an income of less than ₹20,000, and (14%) had an income of less than ₹60,000. The maximum number of samples follow-up monthly (56%), (18%) of samples follow-up 3 monthly, (2%) of samples follow-up 6 monthly whereas no study sample follows-up annually and a portion of (24%) of the population reported of not having any regularity in follow-up.

Section II: Discussion related to drug adherence
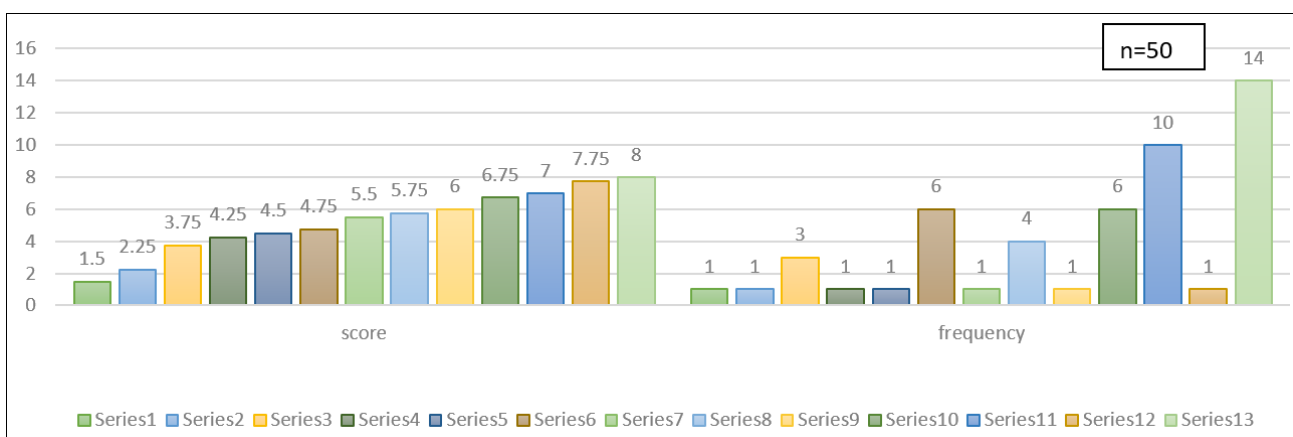
Fig 1: Distribution of study samples as per Morisky 8-item medication adherence tool score

In this study, out of the 50 study participants, 18 participants, (36%) were found to have low adherence to antihypertensive drugs with a score of less than 6, 18 participants, (36%) were found to have medium adherence to antihypertensive drugs with a score between 6 and less than 8 and 14 participants, (28%) were found to have high adherence to antihypertensive drugs with a score of 8 on the Morisky 8-item medication adherence scale. (Fig 1, Fig 2).
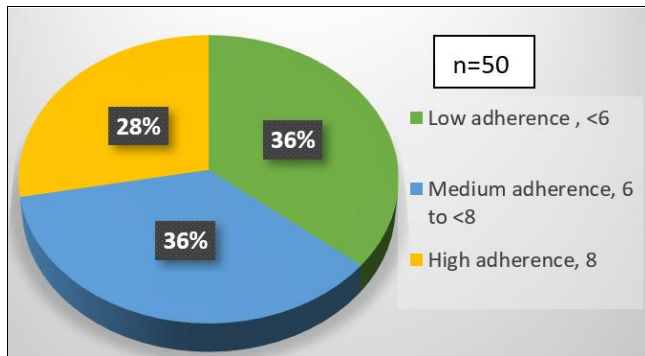

Fig 2: Distribution of study samples as per level of medication adherence

Section III: Discussion related to association between drug adherence and socio-demographic data

1. **Association between age and level of drug adherence:** The computed chi square value of the data is 18.671 with the p value (0.004756) which is less than 0.05 level of significance. Thus, there is a significant association between age and level of medication adherence among the subjects.
A study by Briesacher *et al*. (2019) over 3000 adults aged 18 or older through MarketScan Research databases reported that adherence tends to improve with age in elderly populations (chi square value of 16.2 and p value of 0.008) because they are more likely to have multiple chronic conditions, making them more engaged with their healthcare providers [6].

2. **Association between gender and level of drug adherence:** The computed chi square value of the data is 2.177 with the p value (0.3366) is greater than 0.05 level of significance. Thus, there is no association between gender and level of medication adherence among the subjects.
Mazzaglia *et al*. (2009) in a study conducted among 18,806 hypertensive patients in Italy found that men were more likely than women to exhibit non-adherence to antihypertensive therapy (chi square value 3.06 and p value 0.332). This study suggested that men may be less likely to perceive the importance of long-term treatment for asymptomatic conditions like hypertension, which led to lower adherence rates compared to women [7].

3. **Association between educational level and level of drug adherence:** The computed chi square value of the data is (9.507) with the p value (0.0013) is less than 0.05 level of significance. Thus, there was an association between educational level and level of medication adherence among the subjects.

4. **Association between duration of taking anti-hypertensive drugs and level of adherence:** The computed chi square value of the data is (14.563) with the p value (0.039) is less than 0.05 level of significance. Thus there is an association between duration of taking antihypertensive drugs and level of medication adherence among the subjects.

5. **Association between number of drugs in regime followed and level of adherence:** The computed chi square value of the data is (5.445) with the p value (0.0081) is less than 0.05 level of significance. Thus, there was an association between number of drugs in the regime followed and level of medication adherence among the subjects.

6. **Association between regularity of follow-up and level of adherence:** The computed chi square value of the data is (58.074) with the p value 0.008 is less than 0.05 level of significance. Thus, there is strong association between regularity of follow-up and level of medication adherence among the subjects.

Another study done by Holt *et al*. (2020) among 320 patients in Campania region also emphasized that follow-up visits allowed healthcare providers to identify and address barriers to adherence, such as side effects or difficulties in managing complex medication regimens. By offering tailored solutions during follow-ups, providers could significantly improve adherence rates among patients [8].

Discussion
In this study, out of the 50 study participants, 18 participants, (36%) were found to have low adherence to antihypertensive drugs with a score of less than 6, 18 participants, (36%) were found to have medium adherence to antihypertensive drugs with a score between 6 and less than 8 and 14 participants, (28%) were found to have high adherence to antihypertensive drugs with a score of 8 on the Morisky 8-item medication adherence scale.
Khan *et al*. (2019) evaluated 200 hypertensive patients who attended a national service hospital, Sunderland using the MMAS-8 and found that (35.5%) had low adherence, (38%) had medium adherence, and (26.5%) had high adherence. These proportions are quite similar to our adherence levels, reflecting common challenges in adherence among hypertensive patients. Hence, it can be concluded that there is medium adherence to antihypertensive drugs [9].
A study by Saleem *et al*. (2021) on 120 hypertensive patients in Pakistan found that (37%) had low adherence, (34%) had medium adherence, and (29%) had high adherence, as assessed by the MMAS-8. This aligns closely with findings of our study where (36%) had low and medium adherence, and (28%) had high adherence [10].

Conclusion
This study examined medication adherence among 50 participants using the Morisky 8-item medication adherence scale. The results revealed that (36%) of participants had low adherence, (36%) showed medium adherence, and (28%) exhibited high adherence. Age was found to be a significant predictor of adherence, (chi-square value of 18.671) and a pvalue of (0.004756) indicating that older individuals may be more likely to adhere to their medication regimens. In contrast, no significant associations were found between gender. Educational level and the number of medications were also found to affect the adherence level of patients. Importantly, a strong association was identified between the frequency of follow-up visits and adherence, highlighting that regular follow-ups significantly enhance medication adherence rates. These findings underscore the complexity of factors influencing adherence and the critical role of ongoing patient engagement and support in improving health outcomes for individuals prescribed antihypertensive therapy.

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