



ROLE OF ADHERENCE TO ANTI-HYPERTENSIVE TREATMENT ON BLOOD PRESSURE CONTROL

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ABSTRACT

Background: Hypertension remains the leading cause of non-communicable disease deaths worldwide, largely due to uncontrolled blood pressure. Understanding factors contributing to nonadherence is crucial for reducing adverse cardiovascular outcomes. **Objective:** To assess the association between blood pressure control and medication adherence in hypertensive patients attending General Medicine OPD at a tertiary care hospital. **Methods:** A cross-sectional study was conducted on 100 hypertensive patients aged 18-80 years. Data were collected using a self-reported, validated 8-item MMAS Scale to assess adherence and factors associated with nonadherence. **Results:** Among 100 participants, only 22% were adherent to anti-hypertensive treatment as per the MMAS-8 Scale. These patients demonstrated adequate disease knowledge and positive perceptions about treatment. Of those adherents, 91% had controlled blood pressure. The study found 55% of males were adherent, with a higher predisposition in the 40-60 age group. Patients with comorbidities and multiple medications showed a 56% adherence rate, while 55% of those taking more than one antihypertensive drug were adherent. **Conclusions:** Medication adherence among hypertensive patients is low, significantly affecting blood pressure control. Patient-related factors, along with socio-demographic and healthcare-related issues, contribute to nonadherence. Health educational interventions to improve adherence are crucial for achieving optimal blood pressure control.

KEYWORDS : Adherence, Anti-Hypertensive Medications, Morisky Medication Scale 8, Hypertension, Tertiary Care Hospital

INTRODUCTION

The global epidemic of hypertension is largely uncontrolled, and hypertension remains the leading cause of non-communicable disease deaths worldwide. The WHO defines adherence as "the extent to which a person's behavior—taking medication, following diet, or executing lifestyle changes—corresponds with agreed recommendations from a health care provider."¹ Failure to initiate pharmacotherapy, to take medications as often as prescribed and to persist on therapy long term are well recognized factors contributing to sub optimal adherence. Understanding the factors contributing to nonadherence will play a crucial role in curtailing major adverse cardiovascular outcomes due to poor blood pressure control in hypertensive patients.²

Failure to initiate pharmacotherapy, take medications as prescribed, and persist with long-term therapy are well-recognized factors contributing to suboptimal adherence.³ It is important to assess and understand adherence to antihypertensive medication and the associated factors in order to develop effective strategies for improving adherence and achieving optimal blood pressure control.⁴ The consequences of non-adherence include poor clinical outcomes, increased morbidity and mortality, and unnecessary healthcare expenditure. According to the World Health Organization, the dimensions of adherence include socioeconomic factors, patient-related factors, therapy-related factors, comorbid conditions, and healthcare system factors.

MATERIALS AND METHODS

The study employed a cross-sectional design, conducted on 100 hypertensive patients aged 18-80 years attending the General Medicine outpatient department at a tertiary care hospital. Participants were selected using a convenient

sampling method. Data collection was carried out using a self-reported, validated 8-item Morisky Medication Adherence Scale (MMAS-8), a widely recognized tool for assessing medication adherence. This scale includes questions evaluating the extent of patients' adherence to their prescribed antihypertensive regimen.

Inclusion criteria were hypertensive patients within the specified age range who consented to participate. Exclusion criteria included illiterate individuals, patients with visual or hearing impairments, and those with conditions that could impact their ability to comprehend or respond accurately to the study questionnaire.

Before data collection, each participant provided written informed consent. The data collection process was conducted through direct, face-to-face interviews, ensuring comprehensive understanding and accurate responses. The interview format allowed researchers to clarify any queries the participants had while completing the MMAS-8 Scale. Additionally, detailed information on sociodemographic variables, co-morbidities, and treatment regimens was gathered to explore factors influencing adherence.

Study tool: The Morisky 8-Item Medication Adherence Questionnaire, as depicted in the image, is a structured tool used to assess the adherence behavior of patients towards their prescribed medication. It includes questions that evaluate different dimensions of medication adherence, such as forgetfulness, intentional non-adherence, inconvenience, and difficulty in maintaining a consistent medication routine. Patients respond with either "yes" or "no" for most questions, and adherence is scored based on the pattern of responses. The tool aims to identify reasons for non-adherence, including forgetting to take medication, feeling worse after taking it, or stopping medication once symptoms improve. The final item

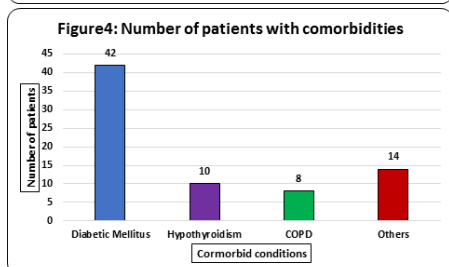
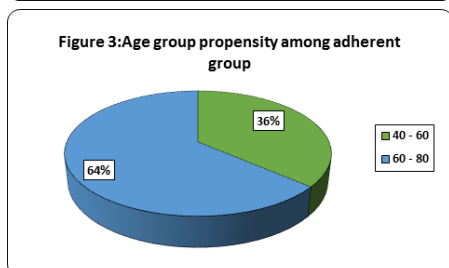
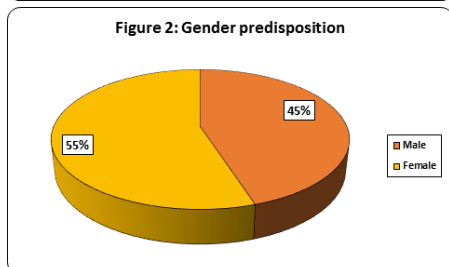
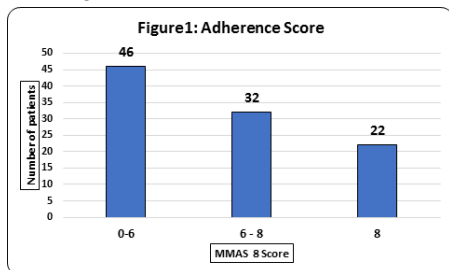
uses a frequency-based scale to assess how often the patient has trouble remembering to take their medication.

RESULTS

Among the 100 cases in this study, only 22% of patients were adherent to anti-hypertensive treatment based on the MMAS-8 Scale.(figure 1) Of these adherent patients, 91% had controlled blood pressure. Adherence was observed in 55% of male patients (figure 2), with the highest adherence seen in the 40-60 age group (figure 3). Additionally, 55% of patients with comorbid conditions requiring multiple medications and 55% of patients taking more than one drug for hypertension were found to be adherent.

DISCUSSION

Our study found a 22% adherence rate to antihypertensive treatment, with 91% of adherent patients having controlled blood pressure, similar to studies by Zhang et al.⁴ (2012) in China and Logviss et al. (2021) in Latvia⁵, which also showed that adherence significantly correlates with better blood pressure control. Adherence was higher in the 40-60 age group and among patients with comorbid conditions, aligning with findings by Amiri et al.⁶ (2020) in Iran. These results emphasize the importance of targeted interventions, including enhanced patient education and addressing socioeconomic barriers to improve adherence and blood pressure management.



CONCLUSION

Medication adherence among hypertensive patients remains

low. Most patients who adhere to their treatment regimens experience better blood pressure control, with key adherence factors being patient-related, including disease awareness, knowledge, and beliefs about treatment. Nonadherence is influenced by various factors, such as socio-demographic characteristics, co-morbid conditions, the prescribed therapy, and issues within the healthcare system. Strengthening health literacy and providing counselling about disease outcomes and potential complications are essential strategies to improve adherence. By focusing on these areas, healthcare providers can significantly enhance blood pressure control and overall patient outcomes.

Recommendations

Improving medication adherence in hypertensive patients requires enhancing health literacy, simplifying treatment regimens, and providing patient-centered counseling. Utilizing digital tools for reminders, involving family support, and addressing socio-demographic barriers are crucial. Regular monitoring and a multidisciplinary approach ensure optimal outcomes, reinforcing the importance of consistent medication adherence for blood pressure control.

Declarations

Ethical Clearance: Obtained from the Institutional Ethical Committee to ensure the study adhered to ethical guidelines, emphasizing participant confidentiality, voluntary involvement, and the right to withdraw from the study at any stage without consequences.

Data availability : Ethics approval and consent to participate

Competing interests

The authors declare no competing interests.

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Author Contributions

Devika U Mohan conceptualised the study. Deepak Murleedharan designed the methodology and applied statistical analyses. Namita Chaudhary conducted data collection and wrote the main manuscript. Monika Mishra provided supervision. All authors reviewed the final manuscript.

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