

## EFFECT OF POLYPHARMACY ON MEDICATION ADHERENCE IN PATIENTS WITH HYPERTENSION

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### ABSTRACT

**Background:** Poly-pharmacy, defined by the World Health Organization as "the administration of many drugs at the same time or the administration of an excessive number of drugs" is frequent among the elderly as they often suffer from chronic diseases with concomitant pathologies. World Health Organization (WHO) defined adherence as "the extent to which a person's behavior and/or life style changes corresponds with agreed recommendations from a health care provider. Hypertension is a silent killer because it has no early

significant symptoms, but creates an extra load on the heart and blood vessels. **Objective:** To determine the medication adherence in patients with hypertension. **Methods And Methodology:** Effect of poly-pharmacy on medication adherence in patients with Hypertension was conducted in MIMS, Mandya. The study is a cross sectional descriptive study and the patients including inclusion criteria were enrolled to the study and the research period was about 6 months. The data collection form which was made by department of clinical pharmacy was used for collecting the details. This form mainly contains demographic details, current medication, past medical and medication history, and other relevant data needed for present study were collected from patient's progress records, treatment chart. **Results:** Out of 200 patients 57 were Hypertensive patients. Males were found to be more (54%) when compared to females (46%). Majority of patients were fall in the age group of 58-67(40.5%), out of which 51.85% were males and 48.15% were females. The total majority of Hypertensive patients were likely to fall in the age group of >68. The medication adherence was found to be least in the age group of more than 58 years and patients in the age group of 18-27 years showed the highest medication adherence. **Conclusion:** According to the result, the medication adherence was found to be least in the age group of more than 58

years. Therefore we found that as age progress, medication adherence declines and poly-pharmacy was found to be more in geriatrics.

## INTRODUCTION

Poly-pharmacy defined by the World Health Organization as "the administration of many drugs at the same time or the administration of an excessive number of drugs" is frequent among the elderly as they often suffer from chronic diseases with concomitant pathologies. If poly-pharmacy is legitimate in some cases, it can also be inappropriate and in all cases carries the risk of adverse effects or drug interactions. In an ageing society such as ours, poly-pharmacy is a major public health issue in terms of quality and efficiency of care and health expenditures. It is thus essential to examine the definitions and measurement.<sup>[3]</sup> Poly-pharmacy is known to increase the risk of adverse drug reaction (ADRs), drug-drug and drug-disease interaction. It has been claimed that patients taking two drugs face a 13% risk of adverse drug interactions, rising to 38 % when taking four drugs and to 82 % if seven or more drugs are given simultaneously. With poly-pharmacy, duplicative prescribing within the same drug class is prevalent and unrecognized drug adverse-effects are often treated with more drugs thus leading to prescribing cascades. Poly-pharmacy also makes compliance with medications more challenging. Non-compliance with prescribed medications can result in sub-optimal therapeutic effectiveness and can have major clinical consequences. If the existence of non-compliance is not recognized, the physician may increase the dose of the initial medication or add a second agent, increasing both the risk and the cost of treatment.<sup>[4]</sup> Medication non adherence is a growing concern to healthcare systems, physicians and other stakeholders because of mounting evidence that it is prevalent and associated with adverse outcomes and higher costs of care. Patients with chronic diseases often receiving multiple medications are at higher risk for non-adherence to medication and medication adherence can be essential for improving health outcomes. To date measurement of patient medication adherence and use of interventions to improve adherence is rare in clinical and pharmaceutical practice. Physician's lack of knowledge and patient's lack of awareness account for about 70% of non-adherence, indicating the necessity to improve physician education, and patient involvement. There are a number of approaches to studying medication-taking behavior. The most precise methods are directly observed therapy, biological methods and measurement of the level of medicine or metabolite (such as blood or urine drug concentrations). Numerous other methods include clinician reports, pill counts, rates of prescription refills, electronic medication monitors, patient diaries, and patient self-

report measures that have the benefits of being cheap, brief, acceptable to patients, valid, reliable, have the ability to distinguish between different types of non-adherence, easy to administer, non-intrusive, and able to provide information on attitudes and beliefs about medication.<sup>[5]</sup>

Hypertension is a silent killer because it has no early significant symptoms, but creates an extra load on the heart and blood vessels. The twentieth century ushered in an era of great interest in blood pressure with the development of a practical method to measure it. Physicians began to note associations between hypertension and risk of heart failure, stroke, and kidney failure.<sup>[8]</sup> Essential or primary hypertension is a persistent elevation of blood pressure which is not caused by underlying cardiac, endocrine, or renal disease. Approximately 70% of blood pressure elevations in youth represent early onset of essential hypertension.

- Adolescents 17 years of age or younger are considered to be hypertensive if their average systolic and or diastolic blood pressure measurements on three visits are at or above the 95<sup>th</sup> percentile for age, gender and height.
- Adult standards are used to evaluate blood pressure elevations in adolescents who are 18 years or older. An average of at least two diastolic blood pressures 90 mm Hg or higher on two or more visits, or an average of multiple systolic blood pressures taken two minutes apart at two or more visits (after an initial screening) at or above 140 mm Hg is used to define stage 1 through hypertension.
- Body size is an important determinant of blood pressure, tall adolescents normally have higher blood pressures than those who are short.<sup>[9]</sup>

## **OBJECTIVE**

### **PRIMARY OBJECTIVE**

- To determine the medication adherence in patients with hypertension among inpatients in Medicine department of MIMS, Mandya.

### **SECONDARY OBJECTIVE**

- To determine the factors affecting medication adherence in patients with hypertension among inpatients in Medicine department of MIMS, Mandya.

## REVIEW OF LITERATURE

Poly-pharmacy is the use of four or more medications by a patient generally adults aged over 65 years, mostly affecting about 40% of older adults living in their own homes. Improper management of medicine is a currently occurring health issue especially among elders mainly due to the poly-pharmacy. Patients with Type 2 chronic diseases are known to be at risk of drug therapy problems since they often receive multiple medications due to co-morbidities associated with the condition. Poly-pharmacy is the concurrent use of multiple medications in the same patients and is defined as prescription administration or use of more medications that are clinically indicated. Hypertension is a silent killer because it has no early significant symptoms, but creates an extra load on the heart and blood vessels<sup>8</sup>. Essential or primary hypertension is a persistent elevation of blood pressure which is not caused by underlying cardiac, endocrine, or renal disease. Approximately 70% of blood pressure elevations in youth represent early onset of essential hypertension.

Marlène Monégat et al conducted a study on Poly-pharmacy: Definitions, Measurement and Stakes Involved Review of the Literature and Measurement Test. At the 5 medications threshold, poly-pharmacy concerns 14% of patients aged 75 and over using the simultaneous poly-pharmacy indicator "on an average day" and "20 days with an interval of 2 weeks" and 23% with the simultaneous poly-pharmacy indicator "one day taken at random".<sup>[3]</sup>

Fita Rahmawati et al conducted an observational study on POLY-PHARMACY AND UNNECESSARY DRUG THERAPY ON GERIATRIC HOSPITALIZED PATIENTS IN YOGYAKARTA HOSPITALS, INDONESIA. The research found unnecessary drug therapy occurred in 63 cases (63 %) with total 117 incidences. Total expense of unnecessary drug therapy equal to Rp.12.553.349,00 (US\$ 1.046, 11). Of the 100 patients, 24 % received more than five drugs per day during the hospital stay. Number of unnecessary drug therapy incidence in patients with five drugs or less/day was lower than patients with more than five drugs/day during the hospital stay: 0.78 v/s 1.91 respectively (P = 0.000).<sup>[4]</sup>

Josip Culig and Marcel Leppee conducted a computerised systematic search of the PubMed databases identified articles on self-report scales for medication adherence measuring using the MeSH terms: medication adherence, compliance, and persistence combined with the terms questionnaire self-report. This study demonstrates that many of the behavioural aspects of the fundamental elements of high blood pressure care and control, such as the medication taking, appointment keeping, and salt intake reduction, are measurable across cultures.

Second, the study showed that vigorous psychometric methods can be used effectively in different cultural groups. Third, the study demonstrates that both concurrent and predictive validity can be assessed quickly in a clinical setting.<sup>[5]</sup>

## **METHODOLOGY**

The present study was conducted at MIMS teaching hospital. It is a 500-bedded tertiary care teaching hospital having different specialties like medicine, surgery, orthopedics, pediatrics, obstetrics and gynecology. This hospital provides specialized health care services to people in and around Mandya city and nearby villages. This was Cross sectional descriptive study conducted in the General medicine department of MIMS. This study was conducted for a period of 6 months. Study population includes adults who are admitted in department of General medicine who are under treatment for hypertension. Sampling size is around 200 and the sampling method is convenience sampling.

### **Inclusion criteria**

Males & females aged more than 18 years who are known cases of hypertension treated with more than 6 drugs (Poly-pharmacy) and giving informed consent to participate in the study.

### **Exclusion Criteria**

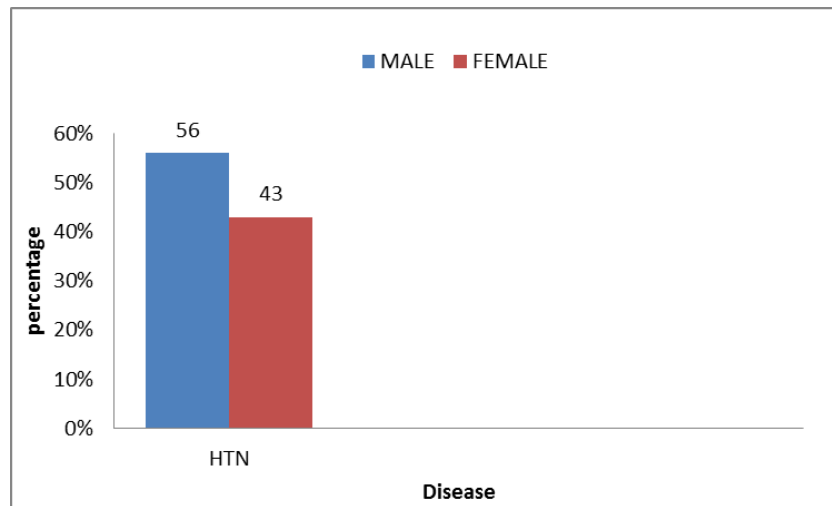
Those admitted in Intensive care Unit. Data regarding details of the patients will be obtained by interview method using a pretested semi structured questionnaire. The treatment will be noted down from the case sheets of the patients in a preformed proforma.

### **Analysis**

Descriptive statistical analysis has been carried out in the present study. Simple percentage calculation will be conducted to arrive at the conclusion of our study. Data will be entered in Microsoft Excel and word have been used to generate graphs, tables etc.

## **RESULT AND DISCUSSION**

This study was conducted in Department of General Medicine of MIMS, Mandya. A total of 57 patients admitted in MIMS were enrolled in the study based on study criteria. The required details from the patient case sheet were recorded in a suitably designed patient profile form and Medication adherence was studied using a questionnaire consisting 6 questions. The prescription data of 57 patients were analysed in the current study, out of which 56% were males and 43% were females.



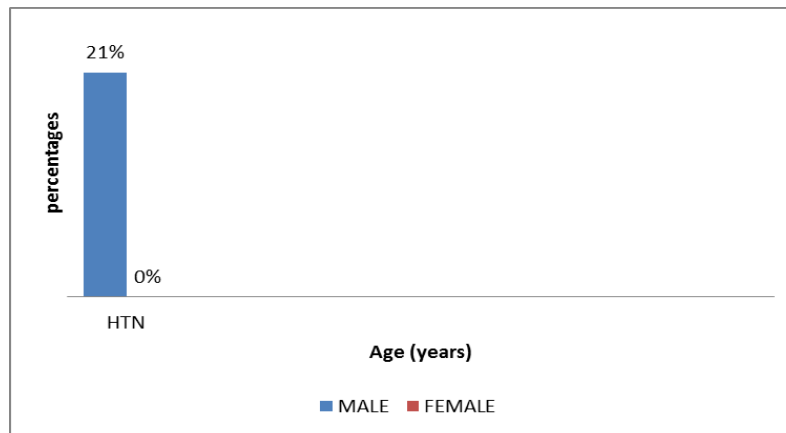
**Figure 1: No: Of Male And Female Patients Admitted To Hospital.**

### Medication adherence

#### Question no. 1: Do You Ever Forget To Take Your Medicine?

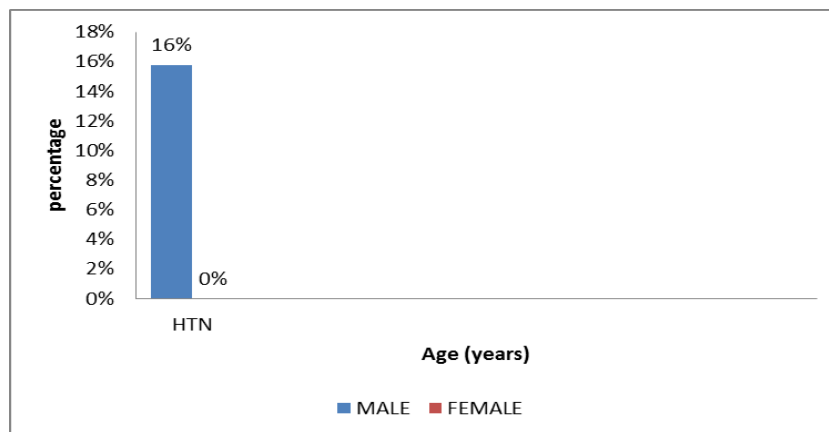


From the current study, out of 57 hypertensive patients, majority of patients who forgot to take medicine comes under the age group of >68 years(21.05%) and the age group with least number of patients who forgot to take medicine is 18-27 years(0%).



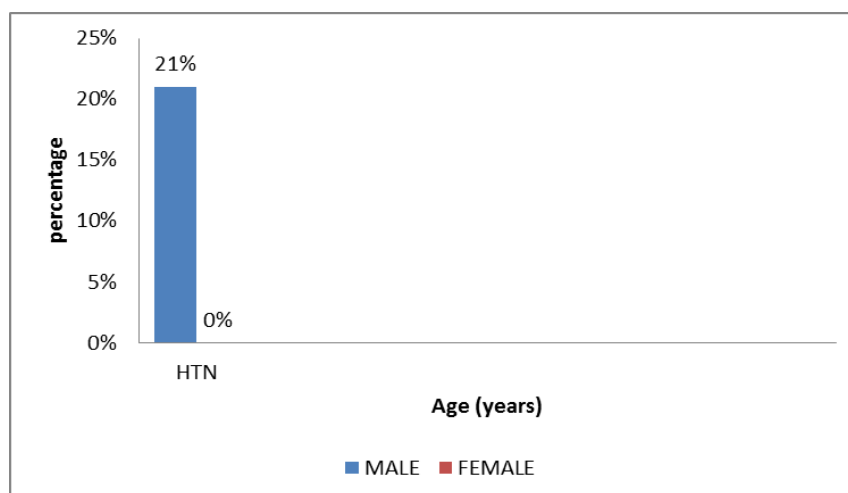
**Figure 2: Patients With Hypertension.**

**Question No. 2: Does Taking All Your Medicines Make You Feel Tired?**



From the study out of 57 hypertensive patients, the majority of patients who felt tiredness after taking medicine comes under the age group of >68 years(15.78%) and the age group with least number of patients who felt tiredness after taking medicine is 18-27 years(0%).

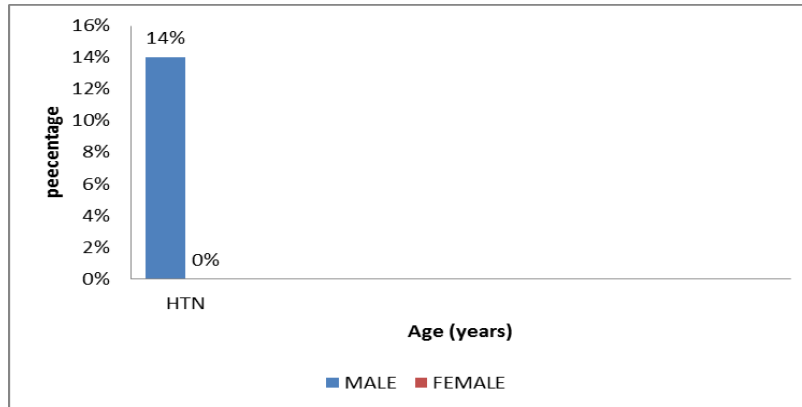
**Question no. 3: Sometimes Are You Careless About Taking Your Medicine?**



**Figure 4: Patients With Htn.**

From the study among 57 hypertensive patients, the majority of patients who were careless about taking medicine comes under the age group of 58-67 years(21.05%) and the age group with least number of patients who care less about taking medicine is 18-27 years(0%).

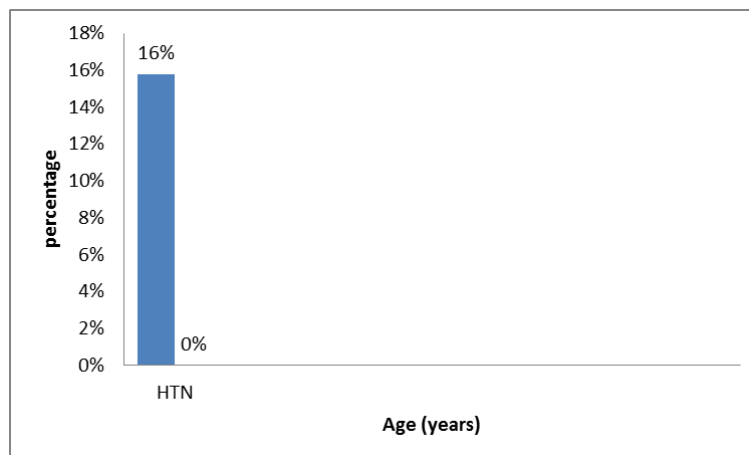
**Question No. 4: Do You Think That Taking All Medicines Are Necessary To Prevent Getting Sick?**



**Figure 5: Patients With Htn.**

From the study among 57 hypertensive patients the majority of patients who thinks that taking all medicines are necessary to prevent getting sick comes under the age group of 48-57 years(14.03% ) and the least was from the age group of 18-27 years.(0%).

**Question No. 5: Do You Sometimes Miss Taking Some Of Your Medicine When You Are Feeling Better?**

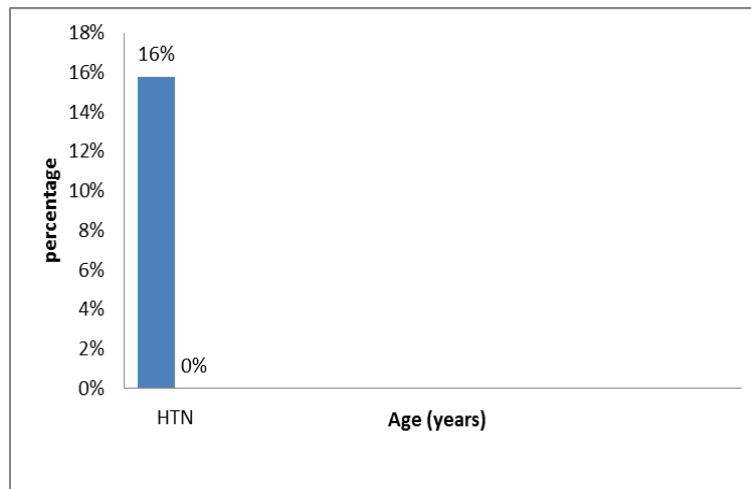


**Figure 6: patients with htn.**

From the study, out of 57 hypertensive patients the majority of patients who sometimes miss taking some of the medicine when they feel better comes under the age group of 58-67 years (15.78%) and the least was from the age group of 18-27 years (0%).



**Question no. 6: Have You Missed Medicines Because You Feel It Was Causing Side Effects?**



**Figure 7: patients with htn.**

In the study among 57 hypertensive patients majority of patients who missed medicine because they felt it was causing side effects comes under the age group of 28-37 years (15.78%) and the least was from the age group of 18-27 years(0%).

## CONCLUSION

A cross sectional descriptive study was conducted to analyze the Effect of Poly-pharmacy on Medication adherence in patients with Hypertension in General Medicine Department of Mandya Institute of Medical Science and Teaching Hospital, Mandya.

A total of 200 patients admitted in MIMS were enrolled in the study based on study criteria. The required details from the patient case sheet were recorded in a suitably designed patient profile form. Out of 200 patients 57 were Hypertensive patients. The prescription data of 200 patients were analyzed in the current study, out of which 109 (54%) were males and 91(46%) were females. Among 200 cases majority of patients were fall in the age group of 58-67(40.5%), out of which 51.85% were males and 48.15% were females. The total majority of Hypertensive patients were likely to fall in the age group of >68.

Medication adherence was studied using a questionnaire consisting 6 questions. So the study concluded that the medication adherence was found to be least in the age group of more than 58 years and patients in the age group of 18-27 years showed the highest medication adherence.

## SUMMARY

The effect of poly-pharmacy on medication adherence in patients with hypertension conducted in MIMS Teaching Hospital, Mandya was a cross sectional descriptive study. A well designed patient data collection form and questionnaire form was used for collecting the details. It comprised of patient's demographic details, diagnosis and treatment.

A total number of 200 cases were collected. According to the result the medication adherence was found to be least in the age group of more than 58 years. Therefore we found that as age progress, medication adherence declines and poly-pharmacy was found to be more in geriatrics.

Methods that can be used to improve adherence can be grouped into following categories:

- Patient education.
- Improve dosing schedule.
- Improved communication between physician and patient.
- Education interventions involving patients and their family members or both.

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