

Comprehension of Prescriptions and Errors in Taking Prescribed Medicines by Veterans – Polypharmacy a Problem Underrated

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Abstract

Background: Polypharmacy is a significant problem in the elderly. The veteran population is unique in terms of better access to health-care services and higher educational qualifications. However, the studies to assess the burden and effects of polypharmacy in this cohort are rare. Hence, the research was done to find the prevalence of polypharmacy in the veteran population. **Methods:** In this cross-sectional observational study, we included veterans with more than 35 years visiting the medical outpatient department. All participants were interviewed about polypharmacy after taking informed consent. **Results:** Out of 394 patients included in the study, 110 were prescribed five or more medicines for their illnesses (27.91%; 95% confidence interval [CI] 21.1%–30%). More than 95% (377/394) of the study participants were unaware of the concept of polypharmacy. There was high compliance to treatment in veterans (97.46%, 95% CI 95.1%–98.6%). **Conclusion:** This study shows that the prevalence of polypharmacy is significant in veterans, including patients in their fourth and fifth decades of life, despite fewer morbidities.

Keywords: Comprehension, polypharmacy, prescriptions, prevalence, veterans

INTRODUCTION

Polypharmacy is a problem of the elderly population and patients in their fourth and fifth decades of life. The World Health Organization has defined polypharmacy as the “administration of many drugs simultaneously or the administration of an excessive number of drugs.” There is no consensus regarding the exact number of medications prescribed to a patient to define polypharmacy but five or more medications prescribed to a patient is generally accepted as polypharmacy.^[1] Polypharmacy is an independent risk factor for increased drug–drug reactions, drug–disease interaction, and adverse drug events (ADEs). The negative consequences of polypharmacy include more significant health-care costs, increased risk of ADEs, drug–drug and drug–disease interactions, and medication nonadherence.^[2]

Veterans are a select group of people who retire at an early age and have access to quality and free health-care services in service hospitals or veterans’ contributory funds. It is essential to assess the prevalence of polypharmacy in the

veteran population retiring at an early age. They will require medicines for a prolonged duration as the life expectancy of a veteran after retirement is more than the general population.^[3] The prevalence of polypharmacy is about 70% among the elderly in India.^[4-6] The prevalence of polypharmacy in people aged more than 20 years is about 40% in a study conducted in South Korea. However, no large data are available for our country.^[7]

Simple prescription review, identification of potentially inappropriate medicines, and rationalizing the prescription will go a long way in delivering better health care to these patients within available resources with the optimal outcome. In this study, we have tried to assess the prevalence of polypharmacy

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in the veteran population of age for more than 35 years. This will help to evaluate the burden of the problem and institute adequate measures to reduce the burden of polypharmacy and prevent complications that can sometimes be fatal.

METHODS

This study is a cross-sectional observational study conducted in a tertiary care center. All patients more than 35 years of age coming to the medical outpatient department (OPD) were included in the study. All consecutive patients coming to the OPD were approached from August 2019 to May 2020. A questionnaire was developed with the help of an extensive literature review and experts. The questionnaire was pretested in 30 participants and modified according to the feedback received. This pretested questionnaire was administered to study participants after taking informed consent. The inclusion criteria for study participants were age more than 35 years and attending medical OPD at our center. The exclusion criteria were those who were unable to communicate and those who denied consent. All included study participants were administered a questionnaire by the single researcher to avoid interrater bias. The average time taken for the interview was 10–12 min. Ethical clearance was taken from the institutional ethics committee.

Sample size

Estimate baseline polypharmacy in veterans aged more than 35 years is 50% with 95% confidence interval (CI) and degree of absolute precision as 5%. The calculated sample size was

385; however, a total of 394 patients were included in the study.^[8]

Statistical analysis

The data were entered in MS Excel. The continuous variables were described using mean and standard deviation. The categorical variables were analyzed using numbers and percentages. Data were analyzed using StataCorp. 2013. Stata Statistical Software: Release 13. College Station, TX: StataCorp LP.

RESULTS

A total of 394 patients were included in the study. The mean age was 61.6 (± 11.3) years, with a mean age of retirement of 43.6 years (± 8.3) years [Table 1]. Around 30% of patients were educated till high school or above. Out of 394 patients included in the study, 110 were prescribed five or more medicines for their illnesses (27.91%; 95% CI 21.1%–30%) and thus met polypharmacy criteria. The higher age group was associated with polypharmacy. The mean age of patients of polypharmacy and patient not receiving polypharmacy was 45.5 (± 6.6) and 43 (± 8.8), and the difference was statistically significant ($P = 0.0085$). The mean number of medicines prescribed was 3.8 (± 2.07) [Figure 1], and the mean pill burden per day was 6.3 (± 3.5). Polypharmacy was associated with multiple morbidities; 76% of all polypharmacy patients had more than one morbidity ($P < 0.001$). More than 95% (377/394) of the study participants were unaware of the concept of polypharmacy [Table 2]. There was high compliance to treatment among participants, with 97.46% (95% CI 95.1%–98.6%) of patients regularly taking all medicines.

Out of the total patients included in this study, 96% (95% CI: 93.8%–97.9%) of patients were explained about their prescriptions by the doctor himself/herself during their OPD visits, and 100% were explained again by the pharmacist. Almost half of the patients (195, 49.5%, 95% CI: 44.4%–54.5%) reported to their doctors in case of any doubt regarding the prescription, 136 (34.5%, 95% CI: 29.8%–39.4%) reported to the pharmacist, and 63 (16%, 95% CI 12.5%–20%) reported to any other health-care worker.

Side effects were experienced by 15.7% (95% CI: 12.1%–19.4%) (62/304) of patients, and either they required adjustment

Table 1: Summary of results of the study

Characteristic (n=394)	Descriptive statistics
Age (years) as mean \pm SD	61.6 \pm 11.3
Mean \pm SD - age of retirement (years)	43.6 (8.3)
Education qualification of patients (number of years of education)	
<12	252
\geq 12	141
Mean \pm SD - number of medicines prescribed	3.8 \pm 2.07
Mean \pm SD - pill burden in patients	6.3 \pm 3.5
Patients taking all prescribed medicines regularly, n (%)	384 (97.5, 95 CI%: 95.1-98.6)
Patients explained about prescription by doctor, n (%)	378 (96, 95 CI%: 93.8-97.9)
Patients explained about the prescription by pharmacist, n (%)	394 (100)
In case of doubt regarding prescription patient approach, n (%)	
Doctor	195 (49.5, 95 CI%: 44.4-54.5)
Pharmacist	136 (34.5, 95 CI%: 29.8-39.4)
Others	63 (16, 95 CI%: 12.5-20)
Side effects observed by patient, n (%)	62 (15.7, 95 CI%: 12.1-19.4)

SD: Standard deviation, CI: Confidence interval

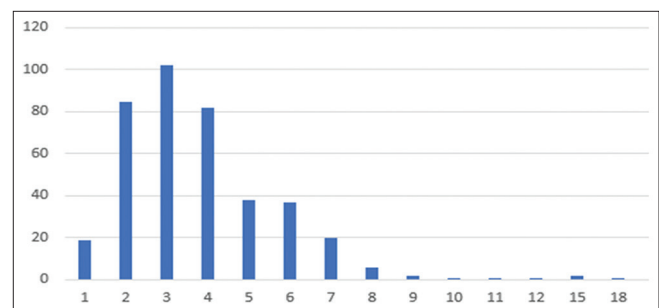


Figure 1: Chart depicting the number of medicines prescribed to patients (five or more is defined as polypharmacy)

Table 2: Response to some key questions in the questionnaire given to patients

Question	Yes (%)
Have you heard of the term polypharmacy?	17 (4.3)
Do you understand what is polypharmacy?	10 (2.5)
Is multiple medicine alright?	184 (46.8)
Do you feel it will be easier to take medicines if multiple drugs are combined into one?	370 (94.1)
Do you prefer to avoid multiple medicine?	275 (70)

of dosage or change of medicines. Almost one-third of the patients (34%) had two or more morbidities, out of which 4.3% had three or more morbidities, and 0.5% had four or more morbidities. Maximum patients had only one chronic illness, 249 (63.19%; 95% CI 58.2%–68%). The most common morbidities were primary hypertension in 33.2% (131/394) and type 2 diabetes mellitus in 32.9% (130/394).

DISCUSSION

Polypharmacy is one of the essential factors in morbidity in the elderly population.^[8-10] However, its prevalence has been found significant even among patients with age more than 35 years.^[7] In our study, also, we found that it is common in the fourth and fifth decades also. The level of education was much higher in veterans as 30.1% of patients were educated till high school or above,^[11] which leads to a better understanding of prescriptions and prevents the incidence of incorrect usage of prescribed medicines. However, the awareness about polypharmacy among patients is minimal, as in our study, more than 95% of the study subjects did not know about polypharmacy. This implies that we need to reach out to patients to increase the level of awareness regarding polypharmacy. The prevalence of polypharmacy in the veteran population was 27.91% (95% CI 21.1%–30%), much lower than the general population and the prevalence worldwide^[4-7,12] This can be attributed to the inclusion of patients above 35 years of age, leading to lesser comorbidities. With 63.19% (95% CI 58.2%–68%) of patients having only one chronic illness, the prevalence of polypharmacy in 27.91% (95% CI 21.1%–30%) of patients is problematic. It needs measures to cut down the prescriptions in these patients. This prevalence, however, is only for medical OPD patients.

The mean number of medicines was 3.8(±2.07); however, the mean pill burden was 6.3 (±3.5). This high mean pill burden is likely due to the requirement of two or more tablets of the same drug to be taken for appropriate dosing of the patient. This can be easily curtailed with proper planning during the procurement of medicines to provide the right dosage of medication in a single tablet. In our study, the compliance rate for taking medicines was excellent. Side effects of drugs were experienced in 15.7%. Patients are required to either changing the dose of a drug or switching to another drug in veterans, which is a cause of concern and highlights the importance of decreasing polypharmacy.

CONCLUSION

Polypharmacy is a significant problem leading to morbidity and mortality in elderly population who have multiple morbidities.^[13-14] The prevalence of polypharmacy in veterans with an age of more than 35 years is substantial and leads to side effects even though most patients had only one chronic illness. There is a need to take definite measures to sensitize the veterans and their health-care providers regarding the problem of polypharmacy and how to minimize it.^[15-18]

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Conflicts of interest

There are no conflicts of interest.

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