

## Original Research Article

# Patients' knowledge of prescribed medication: a cross sectional study in a tertiary care centre, Mumbai

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## ABSTRACT

**Background:** Inadequate understanding by patients of medical prescription given to them adversely affects treatment compliance; which can result in treatment failure and increase the incidence of adverse effects. The study site is a tertiary care hospital in a metropolitan city and the patients attending here are particularly vulnerable in this regard both due to the heavy patient load in the outpatient department and their low socioeconomic status.

**Methods:** This was a cross sectional study conducted in the pharmacy of K.E.M. Hospital, Mumbai over a period of 1 month. Study population included general outpatient department patients of the hospital. Patients were interviewed using a pre validated questionnaire and their knowledge of the prescription analysed under five key aspects including dose, timing, duration, side effects and purpose of each drug. Data was entered using Microsoft Excel and analyzed using SPSS 22 software.

**Results:** The mean age of the population was 37.6, with a standard deviation of 12.4. A good overall knowledge of the prescription was present only in 12.4% patients. In 52% of patients, the level of knowledge ranged from 'no knowledge to little knowledge'. Age and literacy had statistically significant associations with overall knowledge of prescription.

**Conclusions:** There is a significant gap in prescription knowledge in the study population. Age and literacy of the patient has an effect on prescription knowledge.

**Keywords:** Prescription knowledge, Treatment compliance, Medication adherence

## INTRODUCTION

A reasonable level of understanding by patient of the prescription given to them is essential for proper adherence to treatment schedule, which in turn is crucial for treatment success. Non-compliance with treatment schedule is one of the most important reasons for treatment failure, which causes wastage of health care resources.<sup>1</sup> Non-adherence to treatment is considered by the World Health Organization as a major epidemiological problem, causing a significant number of

deaths, and aggravated diseases, particularly in underdeveloped countries.<sup>2</sup> Causes of poor medication adherence includes patient-related factors such as lack of understanding of their disease, lack of involvement in treatment decision-making process, sub optimal medical literacy etc., physician related factors such as prescribing complex drug regimens, failing to explain prescription effectively, inadequately considering financial burden to the patient etc., and also health system related factors that limit the patients' access to care.<sup>3</sup>

Doctors in public hospitals of India, being overburdened with patients, are seldom able to dedicate sufficient time to educate the patients about their prescription. Also, its common knowledge that guidelines for writing medical prescriptions so that they become clear to the patients are rarely followed effectively.<sup>4,5</sup> Hence, verbal instructions by pharmacists are most often the only source of prescription-related information to the patient.

The general outpatient department (OPD) of K.E.M. Hospital, Mumbai, managed by the Department of Community Medicine, has a daily footfall of around 275 patients who are tended to by a team of 10 doctors in a span of four hours.<sup>6</sup> As a result, the time available for educating the patient regarding prescription is very limited both at the doctors' end and at the pharmacist's end. The hospital caters to a patient base which consists pre-dominantly of low socioeconomic status individuals, who are more at risk for inadequate understanding of the prescription.

The aim of the study was to assess the level of knowledge of patients regarding the name, dosage, purpose and side effects of drug prescribed to them in the OPD and to understand the factors that determine the level of knowledge.

## METHODS

General OPD of K.E.M. Hospital, Mumbai had a general OPD attendance of 82900 in the year 2016 with an

**Table 1: Calculation of level of knowledge of prescription.**

Patient X	Dosage	Duration	Purpose	Side effects	Special instructions
<b>Drug 1</b>	Known (1)	Known (1)	Unknown (0)	Unknown (0)	Known (1)
<b>Drug 2</b>	Known (1)	known (1)	Known (1)	Unknown (0)	Unknown (0)
<b>Drug 3</b>	Unknown (0)	Unknown (0)	Unknown (0)	Unknown (0)	Unknown (0)
<b>Drug 4</b>	Known (1)	Unknown (0)	Known (1)	Unknown (0)	Unknown (0)
<b>Drug 5</b>	Known (1)	Known (1)	Unknown (0)	Unknown (0)	Unknown (0)
<b>Total score</b>	4/5=80%	3/5=60%	2/5=40%	0=0%	1/5=20%
<b>Classification</b>	Good knowledge	Moderate knowledge	Little knowledge	No knowledge	Very little knowledge

### Statistical analysis

Data was entered using Microsoft Excel software and analysed using SPSS 22. Percentages, means and standard deviations were used to describe the sample. Man-Whitney U-test was used as a test of significance for factors affecting level of knowledge of prescription.

## RESULTS

The age of the sample population varied from 18 to 64, with a mean of 37.6 and standard deviation of 12.4. There were 90 (62.1%) males and 55 (37.9%) females in the sample.

average of 275 patients on each working day. There were 25 OPD working days in the month of study, bringing the population size to 6875. A sample size of 145 was obtained, assuming prevalence of knowledge as 30%, at an allowable error of 15% of prevalence.

Six general OPD patients were chosen randomly every day and interviewed after they collected prescribed drugs from the pharmacy. Patients' knowledge regarding each drug prescribed to them was assessed under five main aspects: Doses per day, Duration of regimen, Purpose of each drug, Side effect of each drug and Special instructions if any. For each aspect of each drug, 1 point was given for correct response and 0 points for incorrect response. Percentage scores in each aspect were calculated. For example, if patient gave correct response regarding the dose of 3 out of 5 drugs in the prescription, knowledge regarding dosage was calculated to be 60%.

Based on this score, for each aspect mentioned, patients were categorized into five classes, such as: 0%- no Knowledge, 1-25%- very little knowledge, 26-50%- little knowledge, 51-75%- moderate knowledge and >75%- good knowledge.

In addition, overall knowledge of patients regarding prescription was calculated by taking mean of percentage knowledge in each aspect. Table 1 shows the method of calculation of overall knowledge.

Mean years of schooling was 8.95 with a standard deviation of 5.08. Educational status of the patients is given in Table 2.

**Table 2: Educational status of patients.**

Status	Number	%
<b>Illiterate</b>	28	19.3
<b>Middle school</b>	4	2.8
<b>High school</b>	51	35.2
<b>Secondary</b>	32	22.1
<b>Graduate</b>	30	20.7
<b>Total</b>	145	100.0

**Overall knowledge of prescription and source of prescription related information**

Only 16% of the patients received any prescription related information from the doctor. Pharmacist was the only source of information for the remaining patients. A good overall knowledge of the prescription was present only in 12.4% while in 52% of patients, the level of knowledge ranged from no knowledge to little knowledge (Table 3).

**Table 3: Overall knowledge of prescription.**

Level of knowledge	Number	%
No knowledge	8	5.5
Very little knowledge	26	17.9
Little knowledge	44	30.3
Moderate knowledge	49	33.8
Good knowledge	18	12.4
Total	145	100

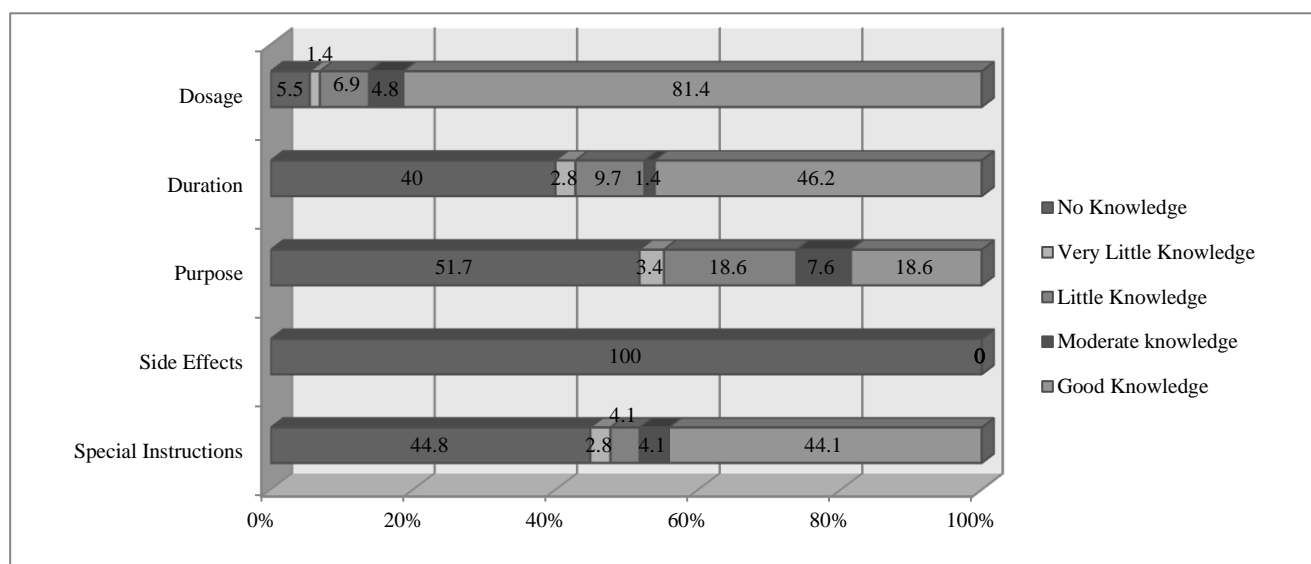
**Level of knowledge for each aspect of prescription**

More than 80% of the patients had good knowledge regarding dosage of the drugs given to them, 46% regarding duration of treatment, 44% regarding special instructions and only 18% regarding purpose of each drug in the prescription. None of the patients had any knowledge about the potential side effects of drugs given to them (Figure 1).

**Factors affecting prescription knowledge**

It was found that age more than 50 (Man Whitney value- 1.189; p=0.07) has a statistically significant association with the overall knowledge of prescription. Illiteracy (Man Whitney value- 1.129; p=0.008) is another factor which had significant effect on prescription knowledge.

Number of drugs in the prescription, sex of the patient or patients' and English literacy did not have a statistically significant effect on overall prescription knowledge (Table 4).



**Figure 1: Level of knowledge of each aspect of prescription.**

**Table 4: Factors affecting level of knowledge of prescription.**

Factor	Categorization	N	Man-Whitney U value	Significance
Age (years)	<50	115	1.189	0.007
	>50	30		
Sex	Male	90	2.312	0.490
	Female	55		
Education	Illiterate	28	1.129	0.008
	Literate	117		
Working knowledge in English	Yes	43	1.794	0.072
	No	102		
No. of drugs in Prescription	<3	68	2.186	0.76
	>3	77		

## DISCUSSION

The study shows that doctors in general do not devote adequate time for educating the patient about their prescription, as only 16% of patients received any prescription related information from their doctor. This could be attributed to the unfavourable doctor-patient ratio and also lack of awareness among the doctors regarding the necessity of patient education.

Patients were found to be severely lacking in overall knowledge of prescription, with only 12.4% classified as having a good overall knowledge. More than half of the patients had no or little overall knowledge of prescription. This raises serious concerns about the effectiveness of treatment. In comparison, in a study done by Raharinjatovo et al, 14% patients reported that they did not understand the content of the prescription and 32% were unaware of the treatment objectives.<sup>7</sup> Another study by Davis et al showed that 18.9% patients failed to correctly identify their medications and 46.3% misunderstood one or more of the prescription label instructions.<sup>8</sup>

With regards to the individual aspects of prescription, wide variation was observed in knowledge of each aspect. While majority of patients were found to have good knowledge regarding the dosage of drugs given to them, less than half the patients had good knowledge regarding the duration of treatment. This can cause serious problems such as antibiotic resistance when the patient fails to complete the course, and increased incidence of adverse effects when the patient extends the course beyond physician recommended duration. Knowledge of special instructions regarding prescription such as timing of intake in relation to food was also found to be inadequate, raising further concerns about reduced treatment efficacy. Only one patient out of five was aware about the purpose of each drug in the prescription, which is a necessary knowledge in the case of anti-emetics and analgesics that are to be taken based on symptomatic need. None of the patients had any knowledge about the potential side effects of drugs given to them. In a study by Davis et al, out of the incorrect responses given by patients about their prescription, the majority (51.8%) of incorrect responses reflected an error in dosage (that is, tablespoon vs. teaspoon), and 28.2% stated the wrong dose frequency (that is, “one tablet each day for seven days” instead of “take one tablet by mouth twice daily for seven days”).<sup>8</sup>

Age more than 50 years and illiteracy was found to adversely affect the overall knowledge of prescription. However, patient's gender, English knowledge or the number of drugs in the prescription did not have a significant effect. This is in line with the study by Raharinjatovo et al, which found a negative correlation between illiteracy and understanding of prescription.<sup>7</sup> A study by Kalichman et al on health literacy and medication adherence also found that literacy has

significant association with medication adherence.<sup>9</sup> In contrast, Marvanova et al found that male gender and increase in number of pre-admission medications reduces the odds of medication understanding by patients while the current study did not find a significant association between these variables.<sup>10</sup> Another study by Edelberg et al found that understanding of prescription was inversely related to age, but found no such association with gender or level of education.<sup>11</sup>

## CONCLUSION

There is a significant gap in prescription knowledge in the study population at a level that can adversely affect treatment outcomes. Doctors and pharmacists have to ensure that adequate time is spent on educating the patient about the relevant aspects of the prescription given to them. Elderly and illiterate patients require special attention in this regard. Guidelines for prescription writing such as use of capital letters and avoidance of compound writing need to be implemented strictly. Use of colour and shape differentiation of tablets so that laypersons are able to easily identify drugs and their strengths should be considered.

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