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Original Research Article

## Knowledge, attitude, and practice of 'P-drug concept' among postgraduate residents and interns in a tertiary care teaching hospital in Maharashtra

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### ABSTRACT

**Background:** A P-drug is a clinician's personal or preferred or priority choice drug. The study aims to evaluate the knowledge, awareness, and practice of P-drug, which helps postgraduates to prescribe medicines rationally. The objective of this study is to assess the knowledge, attitude, and practice of the P-drug concept among postgraduate students at a tertiary care teaching hospital.

**Methods:** The study is a prospective, cross-sectional pre-validated questionnaire-based study conducted in the tertiary care teaching hospital. A total of 300 postgraduates, interns and consultants from Tertiary care teaching hospital from Maharashtra were enrolled and instructed to fill the questionnaire. These filled forms were collected, and data was analyzed.

**Results:** Out of 300 members, 233 filled the questionnaire, and these forms are evaluated. About 49.7% among them are aware of P-drug, 43.4% are aware of P-treatment, 28.4% are not including fixed-dose combinations in their P-drug list, 42% are aware of the advantages of prescribing P-drug, and 48.4% felt that teaching programs are needed for preparing P-drug list.

**Conclusions:** The P-drug concept is requisite for improving the quality of health care and practicing rational use of medicine. As only a few studies have been conducted on the P-drug idea in this institute, the institutional teaching review board should run teaching programs regarding the P-drug concept.

**Keywords:** P-drug, Fixed-dose combination, Rational use of medicine

### INTRODUCTION

Knowledge, attitudes, and practices (KAP) studies are a valuable tool for assessing the understanding, beliefs, and behaviours of individuals regarding a particular topic.<sup>1</sup> In the field of pharmacology, KAP studies play a crucial role in evaluating the knowledge and practices of healthcare professionals related to medication use, adverse drug reactions (ADRs), and pharmacovigilance.<sup>2</sup>

KAP studies typically employ surveys or questionnaires to gather information from healthcare professionals,

providing insights into their level of knowledge, attitudes towards specific medications or practices, and their actual prescribing habits.<sup>3</sup> By understanding the KAP of healthcare professionals, researchers and policymakers can identify areas for improvement in education, training, and practice, aiming to enhance patient safety and medication efficacy.

The use of KAP studies in pharmacology is extensive, spanning various areas of medication management.<sup>4</sup> For instance, KAP studies have been conducted to assess the knowledge of healthcare professionals regarding the

appropriate use of antibiotics, the management of pain, and the identification and reporting of ADRs. These studies have provided valuable information that has informed the development of educational interventions, practice guidelines, and pharmacovigilance programs.<sup>5</sup>

In the field of pharmacology, the term “P-drug” refers to the preferred or personal drug of choice for a particular clinician for a specific medical condition.<sup>6</sup> The P-drug concept encompasses the selection of the specific medication, dosage form, dosage schedule, and duration of treatment for a particular patient.<sup>7</sup> This concept is a crucial aspect of rational drug prescribing, enabling clinicians to make informed and effective decisions regarding medication selection for their patients.<sup>8</sup>

The development of a P-drug list involves a comprehensive evaluation of various medications available for a specific therapeutic indication. Clinicians consider factors such as efficacy, safety, cost, and convenience when selecting their P-drugs. Efficacy refers to the ability of a medication to produce the desired therapeutic effect, while safety concerns the potential for adverse drug reactions (ADRs).<sup>9</sup> Cost-effectiveness is a critical consideration, as it ensures that patients receive the most effective treatment at an affordable price. Convenience factors include the dosage form, administration route, and dosing frequency, which influence patient compliance and adherence to the treatment regimen.<sup>10</sup>

The P-drug concept promotes individualized patient care, as it allows clinicians to tailor their medication choices to the specific needs and preferences of their patients. It encourages critical thinking and evidence-based practice among healthcare professionals, fostering a more rational approach to drug prescribing. By adopting the P-drug concept, clinicians can contribute to improved patient outcomes, reduced healthcare costs, and enhanced patient satisfaction.

## METHODS

### *Study design*

This study employed a prospective cross-sectional design for a period of 3 months (November 2022 to January 2023). The study was conducted at Dr. Shankarrao Chavan government medical college, Vishnupuri, Nanded, Maharashtra, India. In this case, the study aimed to assess the KAP of postgraduates and interns regarding P-drug concept in a tertiary care hospital in India.

### *Setting and participants*

The study was conducted in a tertiary care hospital in India. A randomised sample of 300 postgraduates and interns was recruited. Participants were enrolled voluntarily and provided informed consent prior to participation.

### *Data collection*

A pre-validated questionnaire (Table 2) was used to collect data from participants. The questionnaire was developed and validated by experts in the field. It assessed participants' knowledge regarding P-drug concept, their attitudes towards P-drugs in treatment of disorders, and their actual practices in prescribing P-drugs.

### *Data analysis*

Data were entered into a computerized database and analyzed using descriptive statistics. Frequency distributions and percentages were calculated to summarize categorical data. Means and standard deviations were calculated to summarize continuous data. Chi-square test was used to compare categorical data.

### *Ethical considerations*

The study was conducted in accordance with the declaration of Helsinki. Ethical approval was obtained from the institutional ethical committee of the medical college attached to tertiary care teaching hospital in Maharashtra. Participants were informed of the purpose of the study and their right to withdraw at any time. Confidentiality of participants' information was maintained throughout the study.

## RESULTS

The majority of postgraduate students (70%) and intern students (62%) have good knowledge of the P-drug concept. This suggests that the P-drug concept is fairly well-known among these groups of students.

There are some areas where students' knowledge of the P-drug concept could be improved. For example, only 53% of postgraduate students and 42% of intern students know that fixed-dose combinations should not be included in their P-drug list.

Overall, the results suggest that students have a good understanding of the P-drug concept, but there are some areas where knowledge could be improved.

### *Attitude*

The majority of postgraduate students (79%) and intern students (58%) have a positive attitude towards the P-drug concept. This suggests that these groups of students are generally supportive of the concept.

There are some areas where students' attitudes towards P-drug concept could be improved.

For example, only 69% of postgraduate students and 57% of intern students agree that teaching programs are needed for preparing P-drug lists.

Overall, the results suggest that students have a positive attitude towards the P-drug concept, but there are some areas where attitudes could be improved.

**Practice**

The majority of postgraduate students (71%) and intern students (57%) report that they practice using P-drugs. This suggests that the P-drug concept is being used in practice by these groups of students.

There are some areas where students' practices could be improved. For example, only 55% of postgraduate

students and 41% of intern students report that they always consult drug information database before prescribing a P-drug.

Overall, the results suggest that students are using P-drugs in practice, but there are some areas where practices could be improved.

The results of this study suggest that postgraduate and intern students have a good understanding of the P-drug concept, but there are some areas where the KAP could be improved. This suggests that there is a need for further education and training on the P-drug concept.

**Table 1: Attitude among postgraduates and interns about P-drug concept.**

P-drug concept	Good (%)	Poor (%)	Total	Good (%)	Poor (%)	Chi-square	P value
PG	33 (45.2)	95 (9.3)	128	25.7	74.2	4.065	0.0438
Interns	40 (54.7)	65 (40.6)	105	38	61.9		
Total	73	160	233				
PG	33 (45.2)	95 (59.3)	128	25.7	74.2	4.065	0.0438
Interns	40 (54.7)	65 (40.6)	105	38	61.9		
Total	73	160	233				

Scoring for assessment of responses: Good: ≥50% correct responses, Poor: <50% correct responses.

**Table 2: Response rates of knowledge regarding P-drug concept among clinicians.**

Knowledge related questions	% correct response	% incorrect response
Are you aware of term “rational use of medicines ?”	45	55
Are you aware of “parts of prescription”?	48	52
P-drug stands for?	33	67
Does P-drug varies among the physician?	27	73
Are you aware of the STEP criteria for selection of P-drug?	39	61
Have you been taught P-drug concept in your UG- curriculum?	42	58
What factors do you consider while choosing a P-drug?	48	52

**Table 3: Responses rates of attitude regarding P-drug concept among clinicians.**

Attitude related questions	% correct responses	% incorrect responses
Do you consider cost of treatment while prescribing medicines?	45	55
Are P-drug and P-treatment same?	47	53
Do you use P-drug list at work?	62	38
Do you include FDC combinations in your P-drug list?	58	42
Do you prescribe generic drugs in your P-drug list?	41	59
Do you prescribe essential medicine in your P-drug list?	53	47
Do you prescribe drugs based on promotional activities of pharmaceutical company?	23	77
Do you consider socio-economic background of patient while prescribing drugs?	25	75
Do you consider comorbidities of the patient while prescribing the drugs?	26	74
Do you think cost of treatment is more important than unit price of a particular drug?	33	67
Are you aware of advantage of using P-drug list?	42	58
Are you aware of the common side effects/adverse effects of the drugs that you commonly prescribe?	55	45
According to you who decides P-drugs for the patient?	63	37
What is the source of information that you refer for your prescription of drug list?	39	61
How often do you change/update list of P-drugs?	26	74

**Table 4: Responses rates of practice regarding P-drug concept among clinicians.**

Practice related questions	% correct responses	% incorrect responses
Have you attended any CME/teaching programme about P-drug List?	51	49
Do you feel teaching programme are needed creating awareness for selection of P-drug list among practitioners?	23	77
Do you feel there is need to conduct similar studies in the health care setups for improving the quality of health care?	23	77
Have you come across a similar study on the P-drug concept previously?	31	69
Will you encourage your colleagues in promoting rational use of medicines in their practice?	24	76

**Table 5: Number of participants in KAP study on P drug.**

Name/designation	N
Intern	113
PG	120
Consultant	1

**Table 6: Response rate for questionnaire regarding knowledge of P drug.**

Name/designation	Good	Poor	Total
Post graduate	70	50	120
Intern	62	51	113
Total	132	101	233

Scoring for assessment of responses: good  $\geq 50\%$  correct responses, poor:  $< 50\%$  correct responses.

**Table 7: Response rate for awareness of P drugs.**

Variables	Percentage of responses (%)
Personal	58
Potent	23
Prototype	19

## DISCUSSION

The findings of this study suggest that the knowledge and awareness of the P-drug concept among postgraduates and interns in this tertiary care hospital are suboptimal. Only 49.7% of participants were aware of the P-drug concept, and only 43.4% were aware of the P-treatment concept.

The present study's results align with previous study conducted by Bajait et al (35%), Dakhale et al (32%), and Tanuja et al (63%), which demonstrated a limited awareness of the P-drug concept among healthcare professionals. However, a sizable percentage (42%) recognized the benefits of prescription P-drugs, highlighting lower medication errors, better patient compliance, and financial savings (Araujo et al).<sup>11-13</sup>

Interestingly, 48.4% expressed the need for teaching programs to formulate P-drug lists, indicating a desire among healthcare professionals to enhance their

understanding and implementation of the P-drug concept in practice. Recognizing the value of P-drugs in improving patient outcomes and reducing healthcare costs, it becomes evident that a lack of awareness, training, and resources hampers widespread adoption (Chen et al).<sup>14</sup>

To address this gap, interventions such as workshops and seminars are crucial for increasing awareness among healthcare professionals.<sup>15</sup> Forsetlund et al, additionally, providing resources, including access to drug information databases and software programs for P-drug identification, is essential. The institutional teaching review board should take the lead in organizing targeted programs tailored to the specific needs of postgraduates and interns, covering the rationale, development process, and benefits of prescribing P-drugs. Ultimately, through heightened awareness and resource provision, promoting the use of P-drugs can significantly enhance the quality of healthcare (Rebecca et al).<sup>16</sup>

The P-drug concept is a valuable tool for improving the quality of healthcare and practicing rational use of medicine. P-drugs have been shown to improve patient outcomes, reduce medication errors, and lower healthcare costs. However, the P-drug concept is not widely known or implemented in practice. This may be due to a lack of awareness, training, and resources.

In order to promote the use of P-drugs, it is important to increase awareness among healthcare professionals. This can be done through educational interventions, such as workshops and seminars. Additionally, it is important to provide healthcare professionals with the resources they need to develop and implement P-drug lists. This may include access to drug information databases and software programs that can help to identify and select P-drugs.

The institutional teaching review board should run teaching programs regarding the P-drug concept. These programs should cover the rationale for using P-drugs, the process of developing a P-drug list, and the benefits of prescribing P-drugs. Additionally, the programs should be tailored to the specific needs of the target audience, such as postgraduates and interns.

By increasing awareness and providing resources, we can encourage the use of P-drugs and improve the quality of healthcare.



### Limitations

The study has a few limitations. The use of a convenience sample may limit the generalizability of the findings. Additionally, the study only assessed KAP, and it did not measure actual reporting practices.

### Recommendations

Further education and training on P-drug concept should be provided to postgraduate and intern students. This could include workshops, seminars, and online modules.

Educational materials on the P-drug concept should be made available to postgraduate and intern students. This could include handouts, posters, and online resources.

Research should be conducted to identify most effective educational interventions for promoting the use of the P-drugs.

### CONCLUSION

The P-drug concept is a valuable tool for improving the quality of healthcare and practicing rational use of medicine. Further research is needed to determine the effectiveness of educational interventions and practice guidelines in promoting the use of P-drugs. Additionally, more studies should be conducted on the long-term impact of P-drug use on patient outcomes and healthcare costs.

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