

EVALUATION OF PHARMACOECONOMICS AWARENESS AND ITS APPLICATION AMONG POSTGRADUATES OF A TERTIARY CARE HOSPITAL: A CROSS-SECTIONAL OBSERVATIONAL STUDY

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ABSTRACT

Objectives: Pharmacoeconomics (PE) is a branch of health economics which focuses particularly on the cost and benefit of drug therapy. Postgraduate students form the first line of the health care delivery system, especially in government run hospitals; therefore, it is essential that they need to be aware of the concept of PE. The main objective of the study was to assess the extent of knowledge and awareness of PE and its methods of application among medical professionals who are doing postgraduation in various departments.

Methods: This study was conducted at Sheri Maharaja Hari Singh (SMHS) Hospital, a tertiary care hospital associated with Government Medical College, Srinagar. Self-administered questionnaire was distributed among 100 students, out of which 78 completely filled questionnaires were finally used for statistical analysis. The statistical analysis was performed using Statistical Package for the Social Sciences (SPSS, version 19, Chicago, IL, USA).

Results: It was observed that most of the participants were willing to participate in the study, and a good proportion of them (45%) were aware about the concept of PE. However, the majority of the respondents had little knowledge about the principles of PE and only 16% of them responded positively. When it comes to the application of PE, it was found that only 9% are applying these principles in their day to day clinical practice.

Conclusion: There is need to sensitize the health care providers to the concept of PE at undergraduate level so that they will be able to utilize their knowledge of PE, in their clinical practice in the future.

Keywords: Pharmacoeconomics, Postgraduate students, Level of knowledge, Methods of application.

INTRODUCTION

Although pharmacoeconomics (PE) is a new word but economic interest in drugs and other treatments of health problems is much older. PE is a sub-discipline of health-economics, which itself is a relatively new sub-discipline of economics. It is defined as the discipline that evaluates the behaviour of individuals, firms and markets relevant to the use of pharmaceutical products, services and programs [1].

PE studies weigh the cost of alternative drugs and drug regimens against the outcomes they achieve to guide decisions and policies about which drugs should be used, in general, or which intervention should be undertaken. It is currently being used to make formulary decisions, design disease management programs and measure the cost-effectiveness of interventions and programs in health care management [2]. Operationally, the field of PE involves analysis and evaluation of outcomes (clinical, economic, or humanistic), cost consequences and cost comparison (for example, considering resource consumption); identification of alternatives; and decision-making, considering limited (fixed) budget/resources [3]. Clinicians and health care providers worldwide are increasingly facing problems in deciding which treatment is most effective medically and economically [4]. To survive and thrive in this recessionary world, pharmaceutical industries and healthcare establishments will have to rigorously analyze and interpret comparative effectiveness research results or in other words, perform PE evaluations [5].

Given the rising importance of PE in recent decades, medical postgraduate students and other healthcare professionals should have basic knowledge about this subject and actively implement it in diagnostic decision making, therapeutic interventions, the prevention programs, and in clinical research. To our knowledge no such work

has been done in this part of the world to evaluate the awareness of clinicians regarding PE. Since postgraduates are actively involved in the structure and performance of health care system of hospitals, this study was carried out to assess the awareness, knowledge and application of PE among medical postgraduates.

METHODS

This cross-sectional study was carried out by the Department of Pharmacology in Sheri Maharaja Hari Singh (SMHS) hospital, a tertiary care hospital associated with Government Medical College, Srinagar. The main objective of the study was to assess the extent of knowledge and awareness of PE and its methods of application among medical professionals who are doing postgraduation in various departments. Self-administered questionnaire was used to collect the data from respondents who were willing to participate in the study on the date of visit to the tertiary care centre. The first part of the questionnaire contained respondent's general information (age, sex, department and year of post graduation). The second part of the questionnaire included multiple choice formats with focus on knowledge, perceptions and methods of application of PE. The respondents were asked to select one option which is most appropriate to relevant question according to them.

A questionnaire is said to be standardized when each respondent is to be exposed to the same questions and the same system of coding responses. The aim here is to try to ensure that differences in response to questions can be interpreted as reflecting differences among respondents, rather than differences in the processes that produced the answers [6,7]. Standardized questionnaires are often used in the field of educational planning to collect information about various aspects of school systems. The main way of collecting this information is by

asking people questions – either through oral interviews (face to face or telephone), or by self-administered questionnaires, or using some combination of these two methods [8,9].

In this study, standard pattern to measure the level of awareness, knowledge and methods of application of postgraduate students on the general topic of PE was followed. The purpose of the study was explained to all participants, and oral consent was obtained before filling the questionnaire. All the survey questions related to basic definitions on concepts of PE were assigned equal value of 1 for correct response and 0 otherwise. The responses were reviewed and analysis was done for calculating the overall rating scale by dividing the total number of correct response by the total number of questions and multiplying by 100. The results were expressed as percentage response in each of three categories from the total as 100%. The final analysis was performed using Statistical Package for the Social Sciences (SPSS, version 19, Chicago, IL, USA) ($p < 0.05$ was considered significant).

RESULTS

About 100 copies of PE questionnaire were distributed among participants and at the end we received some 90 filled copies of questionnaire out of which 78 completely filled copies, in all respects, were considered for further statistical analysis and the results were formulated. The majority of our respondents were young male doctors and willingness to participate in the study was found to be very good, with 90% of them returning the questionnaire well on time. It was observed that 45% of the respondents were aware about the concept of PE (Table 1). However, the majority of the respondents had little knowledge about the principles of PE and only 16% of them responded positively (Table 2). Considering the methods of application of PE, 24%

of the postgraduates responded positively but out of them only 9% are applying these principles in their day to day clinical practice (Table 3).

DISCUSSION

PE is the description and analysis of the costs of drug therapy in healthcare delivery systems. The importance of PE information to healthcare decision makers is growing day by day. In this study, it was observed that although a good proportion of our respondents were aware about the concept of PE itself, but when it comes to the actual knowledge and methods of application of PE, the results were poor. The actual use of PE evaluation, and knowledge about it, is still limited. A study conducted in Mexico has reported that 17% of the physicians read materials on health economics regularly [10]. While in another study carried out by Wilf Miron *et al.*, it was reported that 42% of the physicians reported high levels of cost consciousness in their daily practice [11]. Vito CD reported that the professional use of the economic evaluations of the health interventions in clinical practice is quite low among Italy physicians [12]. In a study carried out by van Velden *et al.*, it was reported that the knowledge on basic concepts on health economics and their usage by medical professional was limited [13]. Almost similar results have been reported by many other studies carried out in India. Tahasildar *et al.* reported that 42% of their respondents were aware about the concept of PE but only 25% had the knowledge of the subject itself [14]. Savkar *et al.*, in their study reported that 50% of their respondents were aware about the concept of PE, but the actual knowledge about PE was found in only 30% of the participants [15]. Considering the methods of application of PE, only 24% of our respondents reported positively, and when it comes to clinical application, only 9% of them are applying it in their clinical practice. Similar observations were reported by Tahasildar

Table 1: Awareness of pharmacoconomics among studied population

Question number	Awareness questions	Response (%), (n=78)	
		Right answer	Wrong answer
1	Are you aware of the term pharmacoconomics	41	49
2	What is pharmacoconomics	27	73
3	Is every teaching hospital in India following pharmacoconomic guidelines	97	3
4	Is health economics and pharmacoconomics same	62	38
5	Have you heard about pharmacoconomic evaluation techniques in healthcare system	23	77
6	ECH outcome in pharmacoconomics evaluate	20	80

Table 2: Knowledge of pharmacoconomics among respondents

Question number	Knowledge questions	Response (%), (n=78)	
		Right answer	Wrong answer
1	Have you gone under any training/workshop on pharmacoconomics	0	100
2	All are different types of pharmacoconomic analysis EXCEPT	24	76
3	Following are different types of cost involved in pharmacoconomic analysis EXCEPT	20	80
4	Pain and suffering of patients are included in cost	16	84
5	Robustness of results are best tested by analysis	17	83
6	Pharmacoconomic governing body in India	17	83

Table 3: Application of pharmacoconomics among respondents

Question number	Methods of application questions	Response (%), (n=78)	
		Right answer	Wrong answer
1	Are you applying pharmacoconomics in your clinical practice	9	91
2	Most commonly used pharmacoconomic analysis	34	66
3	To compare the costs of different brands as well as brand and generic products which pharmacoconomic analysis is preferred	5	95
4	QALY measured in analysis	34	66
5	To compare the costs of National Highway Project and Vaccination programme which pharmacoeconomic analysis is preferred	41	59
6	Pharmacoconomic analysis which measures which outcome in monetary units	20	80

QALY: Quality adjustment life years

et al., where only 6.5% their respondents were applying the PE in day-to-day practice. Logaraj *et al.*, in their study about the evaluation of health economics, reported that only 6.3% of doctors used regularly the technique of health economics in their clinical practice [16]. In a study among academicians, practitioners, and community representatives, it was observed that more than half of the respondents reported very little or no current use of health economics in their work [17]. Kulkarni conducted research in the form of pilot project among medical students and concluded that there is a need for medical undergraduate students to be sensitized on the basic concept of PE [18]. Hence, the inclusion PE concepts and practical exercises in the curriculum of medical undergraduates would help them to realize the enormous differences in cost of various brands available in the market and will also increase their awareness of indirect cost and intangible cost associated with the drug therapy. We recommend that further studies to be carried out on large scale involving private practitioners (working in clinics, nursing homes and corporate hospitals) and practitioners of government hospitals (working at primary, secondary and tertiary care levels), which will give more valid results on the level of awareness, knowledge and application of PE among these professionals.

CONCLUSION

The increasing cost of health care system and the growing advancement of health sector have made the development of PE mandatory. The findings and application of PE in healthcare sector will prove to be beneficial not only to the practitioners but also more to the patients itself. Hence to increase the awareness and knowledge among medical professionals, it is desirable to conduct CMEs, work-shops and symposiums in medical colleges on the subject of PE. This will help them to refresh and update their knowledge on PE, and they will be able to utilize their expertise in day-to-day clinical practice and other medical interventions. There is urgent need to introduce the concept of PE in the teaching curriculum both at undergraduate and postgraduate level so that the medical professionals are sensitized to this concept at the early phase of their carrier and this will help them in better decision making regarding PE in future.

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