

A Study on Knowledge, Attitudes, and Practices towards Pharmacoeconomics among Medical Interns In a Tertiary Care Hospital in Chengalpattu District- A Cross-Sectional Study

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ABSTRACT

Background: Pharmacoeconomics is an essential component of modern healthcare, particularly in resource-limited settings like India. It aids in evaluating the cost-effectiveness of drug therapies and optimizing healthcare resource allocation. Despite its growing importance, there is limited awareness and practical application among medical interns.

Objective: To assess the knowledge, attitudes, and practices (KAP) regarding Pharmacoeconomics among medical interns in a tertiary care teaching hospital in Chengalpattu district.

Methods: A cross-sectional, questionnaire-based study was conducted among 143 medical interns at Melmaruvathur Adhiparasakthi Institute of Medical Sciences and Research from February to April 2024. A semi-structured, pretested questionnaire assessed knowledge, attitudes, and practices related to Pharmacoeconomics. Data were analyzed using SPSS Version 16.

Results: Among the participants, 47.6% demonstrated good knowledge, 38.5% had a positive attitude, and 39.9% reported good practices towards Pharmacoeconomics. While most participants (69.2%) could define Pharmacoeconomics and 84.6% identified types of analysis, awareness of advanced concepts like indirect cost estimation (2.1%) and regulatory bodies (11.2%) was low. The majority (61.5%) showed a negative attitude, and practices were suboptimal, especially in applying Pharmacoeconomics to public health decisions.

Conclusion: The study highlights moderate knowledge but poor attitudes and practices towards Pharmacoeconomics among medical interns. Incorporating Pharmacoeconomics into the undergraduate curriculum and conducting workshops and CME programs could enhance understanding and promote better application in clinical practice.

KEYWORDS: Pharmacoeconomics, Knowledge Attitude Practice, Cost-effectiveness, Generic Drugs, Cross-sectional Study, Chengalpattu.

INTRODUCTION

Healthcare systems globally encounter the dual challenge of increasing costs and limited resources, causing cost-effective decision-making critical. particularly in developing countries, where healthcare budgets are under tremendous pressure to justify spending and maximize future investments. The cost of prescription drugs and pharmacy services has thus become a critical issue for patients, third-party payers, and governments alike. Today and in the future, it is critical to scientifically evaluate the costs and consequences of drug medical aid.¹In this context, Pharmacoeconomics emerges as an important field that bridges the gap between clinical efficacy and economic feasibility, ensuring that patients receive the best possible care within available resources.²

Pharmacoeconomics which is a sub-discipline of health economics has been defined as “the description and analysis of the costs of drug therapy to healthcare systems and society”.³ It is a pivotal discipline that integrates the principles of economics into the evaluation of healthcare interventions, particularly drug therapies. It enables healthcare providers to make informed decisions by assessing the cost-effectiveness of treatments, thereby optimizing the allocation of limited healthcare resources.⁴ Despite its critical importance, the incorporation of Pharmacoeconomics into clinical decision-making remains inconsistent, particularly among early-career medical professionals like interns.

The objective of Pharmacoeconomics is to define the needs of the patient so that available resources can be distributed as per needs of the patient. While prescribing a drug, a large number of drugs are available on brand names but are very costly, while at the same time good quality drugs by generic names are available at half the costs, thus one should preferably prescribe a drug by generic name, of course not compromising on quality. The health care resources are very limited, and the healthcare purchasers are now engaged in finding the ways to contain drug costs without compromising on the quality of medical care.⁵

Medical education plays a crucial role in addressing these gaps by incorporating Pharmacoeconomics into the curriculum. Such efforts can help interns make informed decisions about drug therapies and resource allocation, thereby aligning clinical practice with healthcare system sustainability.⁶ This study assesses medical interns' knowledge, attitudes, and practices regarding Pharmacoeconomics in a tertiary care teaching hospital. Its findings are intended to guide targeted interventions that address knowledge gaps and promote cost-effective healthcare delivery.

Objectives:

To assess the knowledge, attitude and practice towards Pharmacoeconomics among medical interns in a tertiary care teaching hospital in Chengalpattu district.

MATERIALS AND METHODS

Study design and setting:

This questionnaire based cross sectional study was carried out among the medical interns in a tertiary care teaching hospital in the Chengalpattu district for a period of three months from February to April 2024.

Study participants, sampling technique and sample size:

The study was conducted at Melmaruvathur Adhiparasakthi Institute of Medical Sciences and Research, a tertiary care medical college in Tamil Nadu, India. This institution serves a diverse patient population and offers undergraduate medical education that includes exposure to clinical and research-oriented learning experiences. The medical interns were included in the study, representing an ideal population for assessing knowledge, attitude and practice towards Pharmacoeconomics, as they are the budding doctors exposed to patients for the first time in prescribing medication. Not willing to participate were excluded from the study. The sample size was calculated using the single proportion formula by taking the proportion of knowledge (p) about Pharmacoeconomics (39%),⁷ and absolute precision (d) 8 % at a 95% confidence level. The final sample size achieved was 143.

Data collection tools and techniques:

We used a pretested, semi-structured questionnaire which consisted of the basic details of the participants, questions related to knowledge, attitude and practice about Pharmacoeconomics. Data were compiled, entered in Microsoft Excel software, and analysed using SPSS Version 16 (SPSS Inc, Chicago IL, USA). All the categorical variables were presented as frequencies and percentages and continuous variable were presented as mean and standard deviation.

Ethical considerations:

Written informed consent was sought from all participants who were enrolled in the study. The scientific and ethical committee approval was obtained from the Institute Research Committee and the Institute Human Ethics Committee respectively. Data safety and confidentiality were maintained at every step of the study.

RESULTS

The study evaluated the knowledge, attitude, and practice (KAP) of Pharmacoeconomics among 143 participants. Among them 55.9% of the study participants were males. (Figure 1)

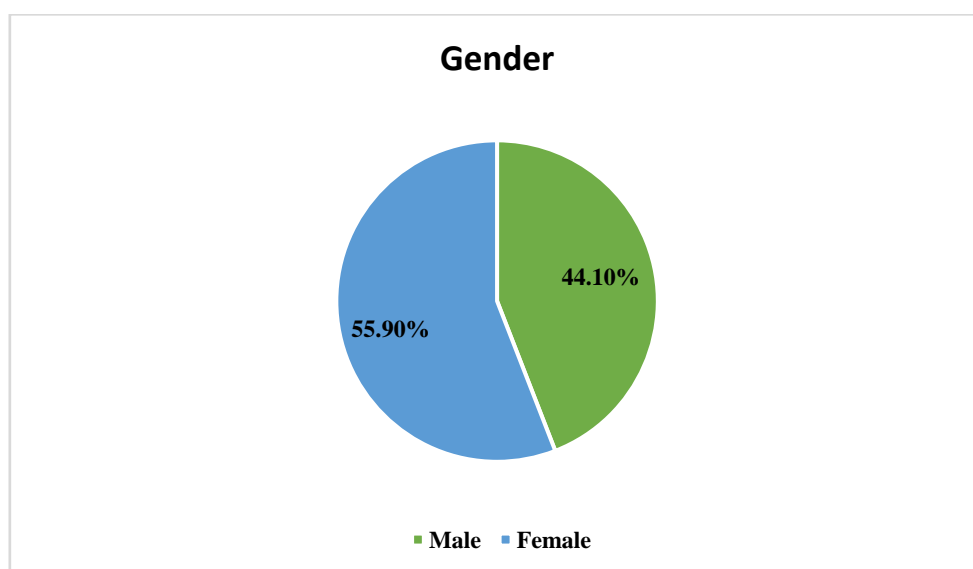


Figure 1: Gender Distribution of the study participants (N=143)

Knowledge

A majority of participants (69.2%) correctly defined Pharmacoeconomics. (Figure 2)

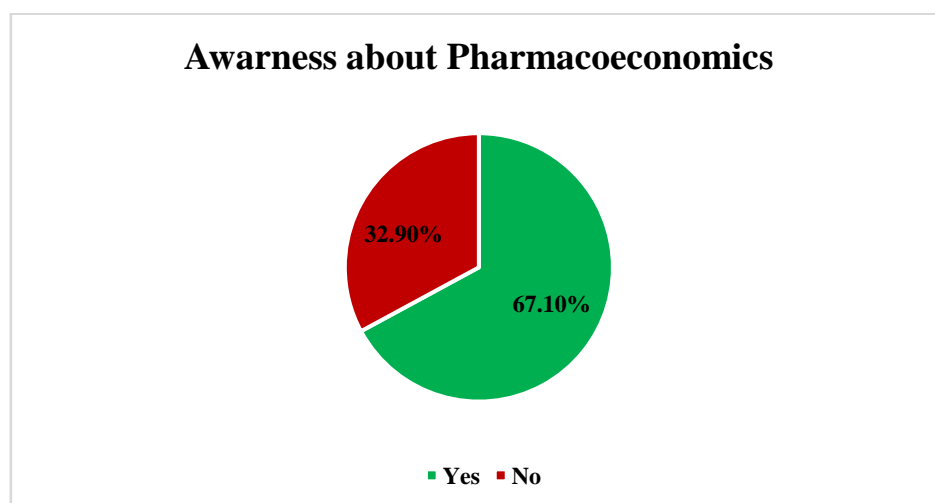


Figure 2: Awareness about the Pharmacoeconomics (N=143)

Most of the study participants (74.8%) understood its role in evaluating ECH outcomes, and 84.6% correctly identified the different types of pharmacoeconomic analyses. However, only 11.2% were aware of the Pharmacoeconomics governing body in India, and very less (2.1%) percentage identified the technique for estimating indirect costs. (Table 1)

Table 1: Percentage of correct response for the questionnaire (N= 143)

| Question | Correct Response | Incorrect response |
|---|------------------|--------------------|
| What is Pharmacoeconomics | 99 (69.2%) | 44 (30.8%) |
| ECH outcomes in Pharmacoeconomics evaluates | 107 (74.8%) | 36 (25.2%) |
| All are different types of Pharmacoeconomics analysis except | 121 (84.6%) | 22 (15.4%) |
| Following are different types of costs involved in Pharmacoeconomics analysis except | 59 (41.3%) | 84 (58.7%) |
| Transport and care of family of patients are included in cost | 124 (86.7%) | 19 (13.3%) |
| Technique typically used to estimate indirect costs | 3 (2.1%) | 140 (97.9%) |
| Pharmacoeconomics governing body in India | 16 (11.2%) | 127 (88.8%) |
| Methods of Application | | |
| Most commonly used Pharmacoeconomics analysis | 59 (41.3%) | 84 (58.7%) |
| To compare the costs of different brands and generic products which Pharmacoeconomics analysis is preferred | 61 (42.7%) | 82 (57.3%) |
| Pharmacoeconomics methods can be applied for all except | 30 (21.0%) | 113 (79%) |
| Quality Adjusted Life Years (QALY) measured in | 107 (74.8%) | 36 (25.2%) |
| To compare the costs of National Highway project and vaccination program which analysis is preferred | 6 (4.2%) | 137 (95.8%) |
| Attitude of Student | | |
| How do you acquire additional knowledge in Pharmacoeconomics? | 25 (17.5%) | 118 (82.5%) |
| Which department people should know about Pharmacoeconomics? | 55 (38.5%) | 88 (61.5%) |
| What is the primary purpose of Pharmacoeconomics? | 43 (30.1%) | 100 (69.9%) |
| How do students typically perceive Pharmacoeconomics? | 88 (61.5%) | 55 (38.5%) |

Among the study participants nearly half of them (47.6%) had good knowledge and 18.2% had poor knowledge. More than half of the study participants (61.5%) had negative attitude and only 39.9% had good practice. (Table 2)

Table 2: Categorization of knowledge, attitude and practice towards Pharmacoeconomics:

| Categories | Frequency | Percentage |
|-------------------|-----------|------------|
| Knowledge | | |
| Good knowledge | 68 | 47.6 |
| Fair knowledge | 49 | 34.3 |
| Poor knowledge | 26 | 18.2 |
| Attitude | | |
| Positive Attitude | 55 | 38.5 |
| Negative Attitude | 88 | 61.5 |
| Practice | | |
| Good Practice | 57 | 39.9 |
| Poor Practice | 86 | 60.1 |

DISCUSSION

The current study showed that 69% of the study participants were aware about the Pharmacoeconomics. Similar findings were reported by Tahashildar et al and Hammad et al with 55% and 65% awareness respectively.^{4,8} However in contrast, only 32% and 39% were aware about Pharmacoeconomics by the studies conducted by Jayashree et al and Gupta et al.^{1,7}

The present study demonstrated that 47.6% of participants had good knowledge of Pharmacoeconomics, particularly in understanding key concepts like cost-effectiveness and ECH outcomes. However, awareness of advanced topics, such as indirect cost estimation (2.1%) and governing bodies (11.2%), remains low. Concurrent findings were reported by Madhav et al and Jayashree et al with 10% of ECH and 10% governing bodies.^{1,9}

This study identified a predominantly negative attitude towards Pharmacoeconomics, with 61.5% expressing disinterest. This is consistent with findings from Tabassum et al., where only 17% of participants exhibited self-driven interest in learning Pharmacoeconomics.¹⁰ These findings highlight the importance of incorporating Pharmacoeconomics into medical curricula, as recommended by Jayasree et al., who emphasized its inclusion at both undergraduate and postgraduate levels to build foundational competence.¹

In terms of practice, only 39.9% of participants showed good implementation, primarily in basic pharmacoeconomic analyses. However, advanced applications, such as comparing costs across broader public health initiatives, were poorly understood, with only 4.2% responding correctly.¹¹ Similar findings were reported by Gupta et al with 11% of participants had comparing costs across broader public health initiatives.⁷ In the current study, nearly half of the study participants (42.7%) were able to differentiate brands and generic products which Pharmacoeconomics analysis. Similar findings were reported by Tahashildar et al.⁴ However in contrast, the studies conducted by Jayashree et al and Gupta et al reported that 15% and 22% were only able to differentiate brands and generic products which Pharmacoeconomics analysis.^{1,7}

Strengths and Limitations:

This study effectively evaluates the knowledge, attitude, and practices (KAP) of Pharmacoeconomics among medical interns, offering a holistic understanding of the gaps and strengths in their understanding. Pharmacoeconomics is an emerging field, and this study addresses a growing need to integrate it into medical education, particularly in resource-constrained healthcare systems. Even though, this study has the above-mentioned strengths it has few limitations too. The research is limited to one tertiary care hospital, which may reduce the generalizability of the findings. While the study provides valuable insights into medical interns, however, it excludes other key stakeholders, such as postgraduate students, practicing physicians, and pharmacists, who also play critical roles in Pharmacoeconomics application.

CONCLUSION

We concluded that the study participants had good awareness and knowledge. However application of Pharmacoeconomics in health care profession was very limited by conducting work shop and CME will enhance their interest and awareness on Pharmacoeconomics which will help them for application of Pharmacoeconomics in their health care profession.

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