

PRE-TEST AND POST-TEST EVALUATION OF KNOWLEDGE OF “ROLE OF DOCTORS IN SOCIETY” – A FOUNDATION COURSE TOPIC IN 1ST-YEAR MEDICAL UNDERGRADUATE STUDENTS

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ABSTRACT

Objectives: This study analyzed the level of improvement in the knowledge about the role of doctors in society using pre-test and post-test models of learning.

Methods: The study was conducted in a classroom of 250 1st-year MBBS students. Structured pre-test and post-test questionnaires were designed based on the concept of the foundation course topic “Role of doctors in society” and given at the beginning and end of the class.

Results: Out of the 250 1st-year MBBS students, 136 (54.4%) were females and 114 (45.6%) were males. The study revealed that among 250 students, 196 (78.4%) had inadequate knowledge, 51 (20.4%) had moderate knowledge, and only 3 (1.2%) had adequate knowledge in pre-test. After administration of the post-test, 113 (45.2%) had adequate knowledge, 111 (44.4%) had moderate knowledge, and 26 (10.4%) had inadequate knowledge. The paired “t”-test showed a high level of significance (0.001).

Conclusion: This study proved the effectiveness of the foundation course topic “Role of doctors in society” in improving the attentiveness and knowledge of the students.

Keywords: Pre-test, Post-test, Doctors, Knowledge, Undergraduates.

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INTRODUCTION

The societal role of doctors has undergone notable transformations since the 1930s and 1940s. Evolving factors such as technological advancements, the integration of artificial intelligence, increased patient education, and rising expectations have posed challenges to the traditional role of doctors. These shifting dynamics pose new challenges for aspiring medical professionals [1].

It is essential to reassess medical education to cultivate a dedicated and motivated workforce possessing values and behaviors aligned with evolving societal requirements. Emphasizing the cultivation of professional values in medical graduates is crucial throughout their journey so that these individuals not only become proficient doctors but also foster a deep personal commitment to their patients while upholding ethical standards [2].

Assessment stands as a crucial element in classroom instruction, and the pre- and post-test approach serves as a method for evaluating knowledge, enhancing learning abilities, concentration, and focus, leading to improved performance. This method acts as a stimulus for attentiveness and encourages further study. By embracing the pre- and post-test education model, student learning experiences a positive boost, aiding improved recall in each class. The primary goal of such assessments is to furnish students with feedback on their knowledge levels. In addition, it enables teachers to gauge the extent of knowledge acquired by learners and serves as a feedback mechanism to enhance lectures, making them more effective and receptive to students [3,4].

Each patient deserves a competent doctor; underscoring the paramount importance of professionalism for medical graduates. Qualities such as knowledge, clinical skills, dedication, mutual respect, integrity,

compassion, altruism, individual responsibility, accountability, continuous improvement, and collaboration with teams are essential for a medical student. Initiating the development of proper professional behavior starts with a student’s entry into medical school, and medical graduates must remain cognizant of these qualities [5].

Hence, the knowledge about the role of doctors in society helps the 1st-year undergraduate students in adapting to the new medical college environment.

Objective

The objective of the study is to evaluate the level of improvement in the knowledge among 1st-year MBBS students regarding the role of doctors in society using a pre-test and post-test questionnaire-based evaluation technique.

METHODS

This study was conducted in Sree Balaji Medical College, Chromepet, in a classroom of 250 1st-year MBBS students on the topic “Role of doctors in society.” This topic was suggested by the Medical Council of India for the foundation course. The study was initiated after getting approval from the Institutional Research Committee and Institutional Ethics Committee No - 002/SBMCH/IHEC/2023/2073. Informed consent was obtained from all the students. A standard 1-h lecture included a pre-test to assess prior knowledge, followed by the lecture itself. At the conclusion, a post-test was administered, consisting of the same questions as the pre-test, plus an additional inquiry regarding the student’s societal role as a medical graduate. The pre-test and post-test assessments were done. Then, both the pre-test and post-test scores were statistically evaluated to interpret the impact of the foundation course topic on 1st-year medical students’ learning.

Data collection procedure

Those willing participants were selected for the study after obtaining informed consent. The students were given answer sheets for writing their pre- and post-test answers. Data were collected and entered in MS Excel and statistically analyzed.

Data entry and analysis

Data were tabulated using Microsoft Excel and analyzed using SPSS software version 27. Data were expressed as mean, standard deviation, and percentage as appropriate. Data were analyzed using appropriate statistical tests.

Score interpretation

Adequate knowledge >70%.
 Moderate knowledge >50-69%.
 Inadequate knowledge <49%.

RESULTS AND DISCUSSION

A total of 250 1st-year MBBS students attended the lecture out of which 136 (54.4%) were females and 114 (45.6%) were males (Table 1). The mean score in the pre- and post-test was 3.43 and 6.48 out of 10, respectively (Figure 1). Error and standard deviation are given in Table 2. The paired differences *t*-value between pre-test marks and (Figure 2) post-test marks are -26.5 with *P* value as highly significant (0.001) (Table 2).

Table 1: Gender distribution of students

Gender	Frequency	Percent
Male	114	45.6
Female	136	54.4
Total	250	100

Table 2: Paired t-test

Marks	Mean	Standard deviation	Standard error mean	t	p value
Pre-test	3.43	1.48	0.1151	-26.5	<0.001
Post-test	6.48	1.35			

Table 3: Frequency table

Knowledge	Pre-test knowledge		Post-test knowledge	
	Count	%	Count	%
Inadequate knowledge	196	78.4	26	10.4
Moderate knowledge	51	20.4	111	44.4
Adequate knowledge	3	1.2	113	45.2
Total	100	100	100	100

Table 4: Cross-tabulation of level of knowledge

Pre-test knowledge	Post-test knowledge			Total
	Adequate knowledge	Moderate Knowledge	Inadequate knowledge	
Adequate Knowledge				
Count	3	0	0	3
% within Pre-test knowledge	100.00	0.00	0.00	100.00
Moderate Knowledge				
Count	29	21	1	51
% within Pre-test knowledge	56.90	41.20	2.00	100.00
Inadequate knowledge				
Count	81	90	25	196
% within Pre-test knowledge	41.30	45.90	12.80	100.00
Total				
Count	113	111	26	250
% within Pre-test knowledge	45.20	44.40	10.40	100.00

The frequency table (Table 3) showed that 78.4% of students had an inadequate level of knowledge in the pre-test according to score criteria. However, the percentage reduced to 10.4% in the post-test. Similarly, 20.4% had moderate and 1.2 % had adequate level of knowledge in the pre-test. The percentage increased to 44.4% and 45.2%, respectively, in the post-test. The cross-tabulation (Table 4) showed an increase in the percentage of improvement in all levels. Students who were in the inadequate knowledge category in the pre-test improved to moderate knowledge (45.9%) and adequate knowledge (41.3%) level. Students who were in moderate knowledge category in pre-test improved to adequate knowledge (56.9%) levels.

The responsibilities of doctors extend far beyond the realms of diagnosing and treating illnesses, and they play a pivotal role in preventive care and health education. The purpose of this study was to assess the impact of the foundation course topic "Role of doctors in society" on 1st-year MBBS students' learning using pre- and post-test and assess whether this model of learning improved students' knowledge.

The study showed a significant improvement in the student's knowledge in the post-test as compared to their pre-test scores. This is similar to studies done by Josephine and Nathira [6] and Malik and Alam [7]. It denotes that the pre- and post-test instruction modules could be effective tools in attaining adequate knowledge of students. *P* value was highly significant (0.001), which clearly indicates that this learning intervention has been successful in achieving its goal.

The aim of having this type of pre- and post-test design is to establish a baseline of the participants' prior knowledge and skills before the learning intervention takes place and helps the educators tailor their teaching strategies to meet the diverse needs of the learners. The results of our study are in agreement with a similar study done by Henderson *et al.* and Sonkar [8,9].

As demonstrated in our study, it helps to raise awareness among participants about what they already know and what they need to learn. This can increase motivation and attentiveness among students by demonstrating the relevance of the upcoming learning experience and helping learners set personal goals for improvement [10].

In addition to the pre-test questions regarding the role of doctors in society, the students were enquired about their perspective on their societal responsibilities as medical graduates. They suggested that apart from medical education and patient care, they can engage with the community to understand the social determinants of health and promote health awareness. They may engage in initiatives to promote preventive measures and advocate for policies that improve the overall health of the population.

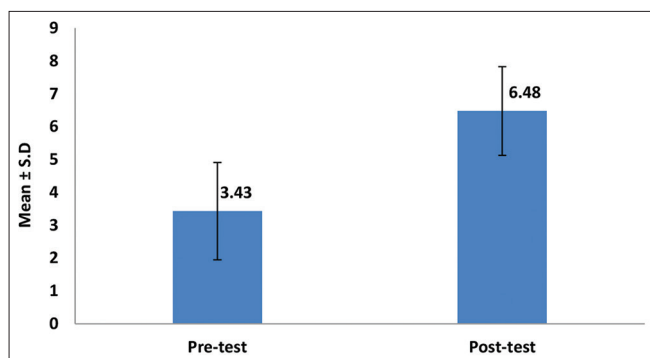


Fig. 1: Mean score of pre- and post-test

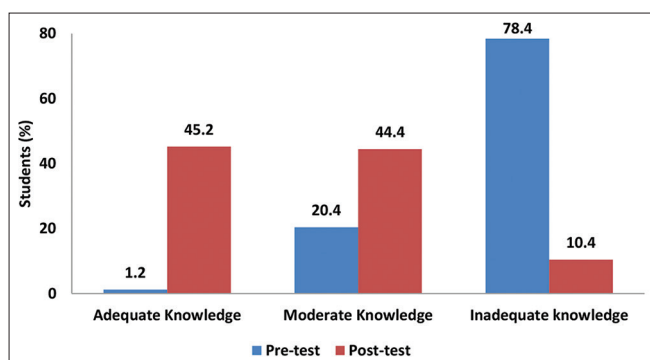


Fig. 2: Level of knowledge in pre- and post-test

Foundation courses are the building blocks of medical education, offering students a well-rounded understanding of medicine and preparing them for the challenges and responsibilities of a medical career. They help to instill professionalism and equip future doctors with the knowledge, values, and skills necessary to navigate the complexities of the medical profession and make meaningful contributions to the well-being of individuals and society at large [11].

Thus, this study revealed that the foundation course played an important role in the development of knowledge of the 1st-year medical students regarding the topic “role of doctors in society”. It also proved the effectiveness of the pre- and post-test model of learning as a valuable tool in education and training, contributing to more effective and impactful learning experiences.

Study strengths and limitations

The study's key strength lies in its focused evaluation of enhanced knowledge regarding the role of doctors in society through the implementation of effective pre- and post-test instructional modules within the foundation course. The acquired knowledge aims to help students grasp their responsibilities as doctors and instill motivation at the outset of the MBBS curriculum. However, a notable limitation is the lack of generalizability, as the study was conducted solely within a single institution.

CONCLUSION

The role of doctors in society is dynamic and continually evolving, influenced by changes in medical technology, health-care policies, and societal needs. The effectiveness of health-care systems depends

significantly on the skills, dedication, and adaptability of medical graduates as they assume their roles as practicing physicians. Therefore, this research demonstrated the efficacy of the 1st-year MBBS students' foundation course about the “Role of doctors in society,” along with the pre- and post-test learning model.

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CONFLICTS OF INTEREST

None declared.

AUTHOR CONTRIBUTIONS

First author – Dr. Sruthi S – Protocol preparation, data analysis, and manuscript preparation; Corresponding author – Dr. Glory Josephine – protocol concept, plan and data collection, data and graph analysis, and manuscript editing.

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