



Knowledge, Attitude, And Practice Of Medical Graduate Towards Coronavirus Disease 2019

¹Dr. Sakshi Singh, ²Dr. Anika Sulania, ³Mr. Ravi Prakash Jha

¹Scientist B, ²Assistant Professor, ³Statistician,

¹National Institute Of Pathology- ICMR, Safdarjung Campus

²SOHS, IGNOU

³Department of Community Medicine, Dr. BSA Medical college, Rohini, New Delhi-85

***Corresponding Author:**

Dr. Anika Sulania

Assistant Professor, SOHS, IGNOU

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Abstract

Introduction: Coronavirus disease 2019 (COVID-19) is an emerging respiratory infection caused by a novel Coronavirus called Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV- 2). The outbreak was declared a Public Health Emergency of International Concern on 30th January 2020. Maximum Health care staff was diverted to provide health care to COVID patients, even the undergraduate students were also utilized for the same. The present study was done to know the knowledge attitude and practices of newly admitted medical graduates about COVID 19.

Objective: To assess knowledge, attitude, and practice of first year medical students towards Coronavirus disease 2019 (COVID-19).

Materials and Methods: A Cross-sectional survey was conducted among the newly joined first year medical students in a tertiary care hospital of Delhi. Total 22 questions related to KAP regarding COVID-19 out of which scores were calculated. Independent samples Mann Whitney U test was performed for investigating the relationship between different categorical variables with KAP scores. P-values <0.05 were considered significant.

Results: Out of the total participants, 26.6% were females 73.4% were males. Almost all the participants (96.6%) increase the frequency of washing hands under the influence of COVID-19. Although no significant relationship was found between different age-categories in terms of knowledge, the participants who were aged 21-23 years had higher knowledge Score. Most of the students had adequate knowledge (87.90 %) and one third students (66.90%) were following good practices but only 30.60 % had positive attitudes. Knowledge and practice score was higher among female students while attitude score were higher among male students.

Conclusion:

Positive results were seen in the study but there is constant need of updating knowledge of the health force since concepts about COVID-19 are evolving on an everyday basis. Implementing Periodic educational interventions, training programs and conducting webinars on infection control practices for COVID-19 for all health care workers and students can be very useful for improving awareness

Keywords: Knowledge, Attitude, Practice, Medical Graduate, Coronavirus Disease

Introduction

In late December 2019, pneumonia of unknown cause was first reported in Wuhan City, China [1].

The World Health Organization (WHO) later named the disease the Coronavirus disease (COVID-19).

COVID-19 caused by the novel Coronavirus, also known as severe acute respiratory syndrome Coronavirus 2 was linked to a seafood and wild animal wholesale market in Wuhan, Hubei Province, China [2]. COVID-19 has since rapidly spread across the world with multiple countries and was declared a global pandemic on March 11, 2020, by the WHO [3]. The strategies established worldwide to reduce the transmission are mostly behavioral (eg, social distancing, regular washing of hands), largely depending on rapid change in behavior, which relies on one's knowledge about the problem, ability to perceive the risk, and willingness to change their attitude [4]. In developing countries like India which had large number of COVID-19 cases along with limited resources and health manpower, even final year medical students were put on duties to provide basic health care to COVID patients. Empowering medical students with adequate knowledge will place them at the forefront of health education to give the public correct information and refute myths and false information about COVID-19 [5-7]. The present study was conducted among newly joined Medical students to assess the knowledge attitude and practices to provide baseline data about Knowledge, Attitude and Perception (KAP) towards COVID-19 pandemic, which will help devise effective preventive strategies for future events. There is a paucity of evidence on assessing knowledge and attitude of medical students toward COVID-19.

Evaluating the current KAP related to COVID-19 among the medical students will be useful in delivering improved insight to address knowledge about the disease and the improvement of preventive strategies.

Methodology

Setting and study participants

The present study was a cross sectional descriptive type of study. Our sample comprised of First year Medical college students. Whole batch was enrolled for the study with informed written consent. They were explained about the purpose of the study and given the option to withdraw at any stage of the interview. However none declined to participate. Questionnaire was filled by the students in a confidential, non-obligatory and non-judgmental manner. Anonymity of the study participants was ensured and utmost confidentiality of the information

collected was maintained. Study was passed by Ethical committee of the institution.

Study instruments

A Predesigned semi-structured questionnaire was used for this study. Two senior faculty members reviewed the tool for its construct, content and face validity.

The questionnaire comprised of four parts; (1) demographics, which surveyed participants' socio-demographic information, including gender, age, place of living, parents' occupation, education and income; (2) knowledge about COVID-19 (K 1-13); (3) attitudes toward COVID-19(A1-2); and (4) practices relevant to COVID-19(P1-4).

Study questionnaire scoring (Awareness, attitude and practices scores)

There were total thirteen knowledge questions, and four of them were open ended while remaining nine had options to choose from. Six knowledge questions had options yes, no or not sure while remaining 3 questions had multiple options. Scoring was done for these 9 objective type questions. +1 was awarded for correct response while zero was awarded for incorrect or no response. An individual score of 0-5 was taken to be inadequate while score from 6-9 was taken as adequate. Two questions related to attitude were scored, +1 for positive attitude while 0 for negative attitude. For practice questions score of 0-1 was taken as poor practice while score of 2 was taken as good practice.

Most of the students had adequate knowledge (87.90 %) and one third students (66.90%) were following good practices but only 30.60 % had positive attitudes.

Data processing and statistical analysis

The SPSS-16 was employed to analyze the data. Frequency and percentages were computed for the categorical variables. An independent samples Mann Whitney U test was performed for investigating the relationship between different categorical variables with KAP scores. All p-values <0.05 were considered significant.

Results:

Frequency and percentage of all the participants' age, gender, type of place they are living, parent's

education and occupation are represented in **Table 1**. Out of total 124 participants 33 (26.6%) were females and 91 (73.4%) were males. Majority of them 79 % were between age group 17-20 years. Most of the students belonged to urban area (87.9%) while only

12.1% belonged to rural settings. Among parents maximum people were graduate and above (mother 43.5%, father 63.7%). Doctor parents constituted 10.5% for both mothers and fathers respectively.

Table-1 Socio demographic characteristics of the study population

Variables	Sex		Total (%)
	Male (%)	Female (%)	
AGE			
17-20	69 (75.8)	29 (87.9)	98 (79)
>20	22 (24.2)	4 (12.1)	26 (21)
Types of area			
Rural	9 (9.9)	6 (18.2)	15 (12.1)
Urban	82 (90.1)	27 (81.1)	109 (87.9)
Literacy of mother*			
Upto High school	17 (18.7)	3 (9.0)	20 (16.1)
Intermediate	34 (37.4)	6 (18.2)	40 (32.3)
Graduate & above	34 (37.4)	20 (60.6)	54 (43.5)
MBBS & above	6 (6.6)	4 (12.1)	10 (8.1)
Literacy of father*			
Up to High school	11 (12.1)	0	11(8.8)
Intermediate	20 (22.0)	2 (6.1)	22 (17.7)
Graduate & above	53 (58.2)	26 (78.8)	79 (63.7)
MBBS & above	7 (5.6)	5 (4.0)	12 (9.7)
Occupation of mother			
Home-maker	68 (74.7)	22 (66.7)	90 (72.6)
Service	11 (12.1)	6 (18.2)	17 (13.7)
Doctors	9 (9.9)	4 (12.1)	13 (10.5)
Others	3 (3.3)	1 (3.0)	4 (3.2)
Occupation of father			
Service	42 (46.2)	18 (54.5)	60 (48.4)
Business	27 (29.7)	8 (24.2)	35 (28.2)
Doctor	8 (8.8)	5 (15.2)	13 (10.5)
Others	14 (15.4)	2 (6.1)	16 (12.9)

Total	91 (73.4)	33 (26.6)	124 (100)
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* Categories below high school were clubbed as the numbers of subjects were very few.

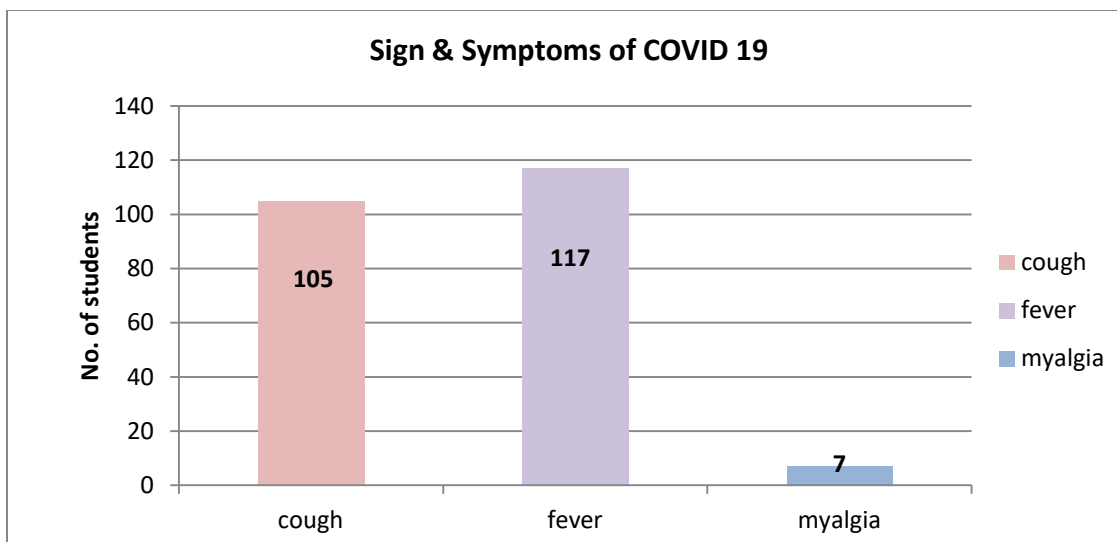
Knowledge, Attitude and Practice measures had been discussed in **Table 2**. Almost all of the participants (99.2%) have heard about COVID-19 and equal numbers of students know that it's a viral infection. 65.3% students know about the transmission of the disease and 66.1% correctly know about the incubation period. One thing to note is that majority of the students (82.3%) does not know that who are susceptible to the infection. Many students (81.5%) realize that COVID 19 is a serious disease. Only about half of the students (54.8%) were sure about the safety of the vaccines. Maximum students (96%) know about the personal protective equipments. Students recognized fever as the most common symptom of COVID 19 followed by cough and myalgia. (Fig.1). Many participants (58.9%) think they lack information about COVID 19 and most of them (79.8%) want more information about the disease. Maximum participants (94.4%) were using mask to prevent the spread followed by hand washing (87.1%) and vaccination (76.6%) (Fig.2). Only 3 students were vaccinated at the time of data collection. 74.2 % participants were changing their PPE kit items regularly.

Table 2: Knowledge, Attitude and Perception of study participants about COVID-19 disease

Q. No.	Question	Correct (%)	Incorrect (%)
1.	Have you ever heard about COVID-19 Diseases	123 (99.2)	1(0.8)
2.	Can we call COVID-19, a pandemic?	122 (98.4)	2 (1.6)
3.	What type of Infection is COVID-19?	123 (99.2)	1 (0.8)
4.	Do you know how the disease is transmitted?	81 (65.3)	43(34.7)
5.	Incubation Period of COVID-19	82 (66.1)	42 (33.9)
6.	Who are susceptible to COVID-19?	22 (17.7)	102 (82.3)
7.	Do you think COVID-19 is serious disease?	101 (81.5)	23 (18.5)
8.	Is it a safe vaccine to use?	68 (54.8)	56 (45.2)
9.	Do you know the Personal protective equipment's like gloves, masks etc. to get protection from COVID -19?	119 (96)	5(4)
10.	Do you have enough information on COVID-19?	51 (41.1)	73 (58.9)
11.	Do you want more information on COVID-19?	99 (79.8)	25 (20.2)
12.	What are the measures you or your family members are taking personally for COVID-19 Prevention?	112 (90.3)	12 (9.7)
13.	Have you got vaccinated against COVID-19?	3 (2.4)	121 (97.6)
14.	How frequently you change them (PPE)?	92 (74.2%)	32 (25.8%)

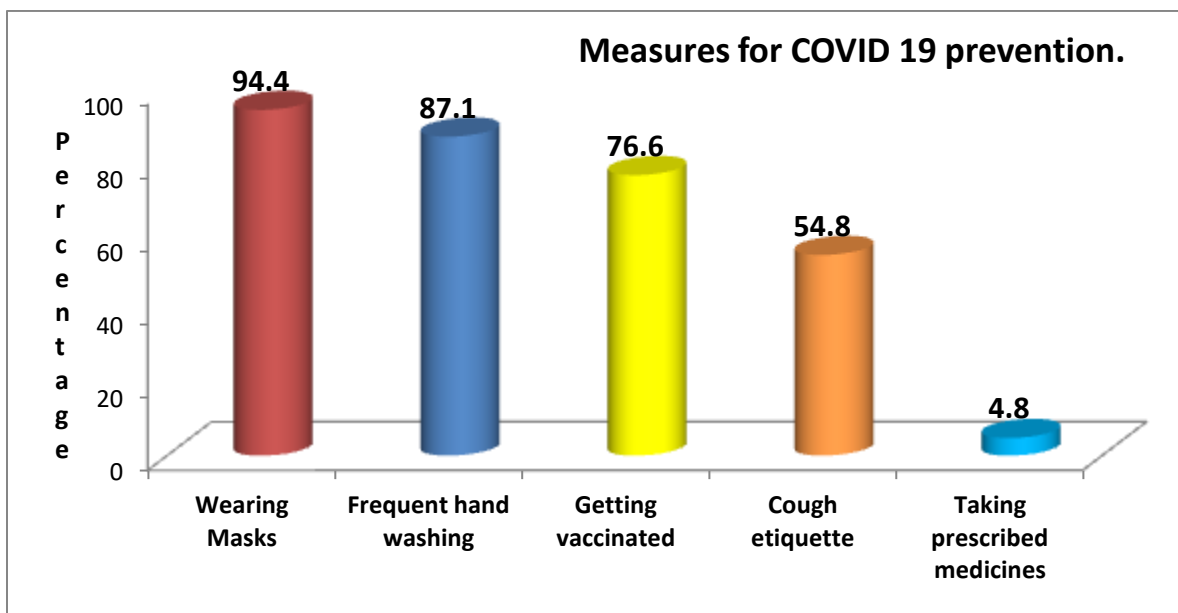
Signs and symptoms were discussed in **Figure 1** where multiple responses were given by the study participants. It was found that 94.3% were mentioned fever as the first symptom followed by cough (84.6 %) and Myalgia (5.6%).

Figure 1: Signs & Symptoms of COVID 19



To inquiring about the preventive measures taken by the study participants, maximum number of the participants pressed on wearing the mask (94.4%), followed by frequent hand washing (87.1%), getting vaccinated against the disease (76.6%). Some also mentioned the following of cough etiquette (54.8%) and taking the prescribed medicines as the preventing measures (4.8%) as shown in **figure 2**.

Figure 2: Measures for COVID 19 prevention.



To compare the association of KAP scores among students with respect to gender, age group, education and occupation of mother and father and the place of living, chi square test was used. Percentage of Knowledge and practice score was higher among female students while attitude score were higher among male students as shown in **Figure 3**. Although the difference was not significant ($p > 0.05$). The age difference also didn't come out to be significant ($p > 0.05$) showing that age does not affect the knowledge, attitude and practices regarding COVID 19. Association of KAP score for education of mother & father, occupation of mother, place of living all came out to be insignificant Only attitude score with respect to occupation of father came out to be significant. So it can be concluded that occupation of parents may have a bearing on the overall attitude of the students. Although the score difference of Knowledge, Attitude and Practice among gender were not statistically significant but Knowledge and practice scores were found to be higher for the age group > 20 as compared to the age group 17-20 although the difference was not statistically significant ($p > 0.05$). (**Table 3**)

Figure 3: Knowledge Attitude and Practice scores for females & males study participants

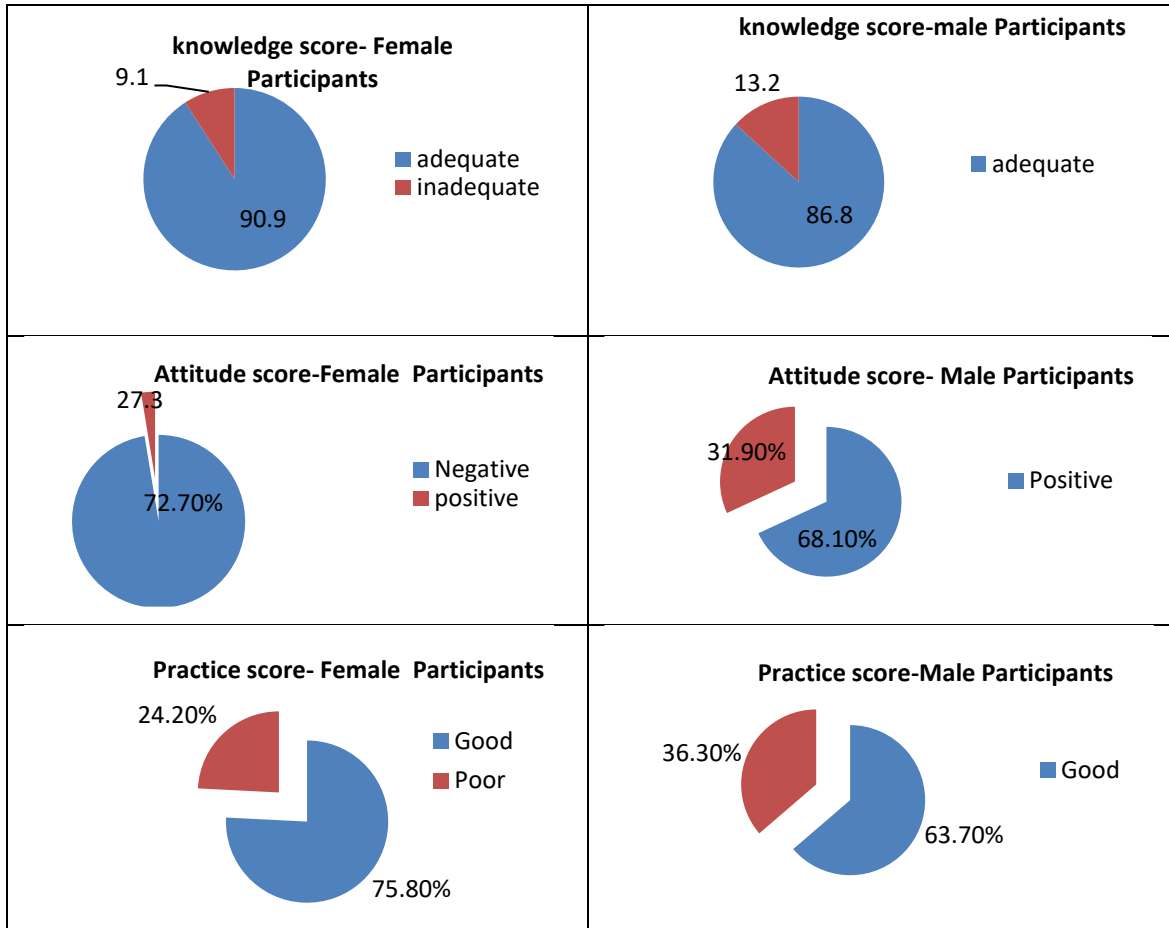


Table 3: Relationship of different age groups with KAP scores

Variable		Knowledge score- P Value	Attitude score P Value	Practice score P Value
Gender		0.53	0.62	0.21
Occupation	Mother	0.42	0.37	0.47
	Father	0.27	0.02	0.26
Education	Mother	0.59	0.47	0.58
	Father	0.59	0.47	0.21
Age		0.15	0.16	0.45
Place of living		0.88	0.40	0.54
Gender		0.33	0.73	0.36
Age		0.51	0.05	0.56
Occupation	Mother	0.34	0.26	0.22
	Father	0.09	0.006	0.21

Education	Mother	0.98	0.75	0.48
	Father	0.92	0.36	0.17
Place of living		0.49	0.63	0.41

Discussion:

Involving undergraduates might not sound like a permanent solution to the problem for this pandemic but through proper training, starting from the very beginning may produce a work force which can be used for future emergency situations like the present one. Although present study only involved newly admitted MBBS students but from the results the weak areas can be realized and focused training can be given to the undergraduate students.

Although the score came out to be different for male and female participant but it couldn't be proved statistically. Although some studies showed statistical significant association with gender for knowledge, attitude and practices [8, 9] as opposed to our study. Female students in our study had negative attitude as compared to males, similar to study by Olum R et al [10] but in the present study statistical significance could not be proved. The findings were opposite to that of Noreen K et al⁹ which showed that Females medical students had adequate knowledge, positive attitudes, and good practices against COVID-19 than males. Females had higher knowledge and practice score but statistically insignificant similar to Maheshwari S et al[8]. While KAP scores were higher amongst males in study by Gahlot A et al [11].

Regarding the knowledge about COVID 19, majority of the participants in this study (79.7%) had correct knowledge about the main symptoms of COVID-19, its transmission routes. These findings were comparable to other studies [8-10].

In the present study students believed that vaccine would be safe like other study done by Khasawneh A et al [12].

In the present study wearing mask was the most common practice to be followed by the students to prevent the spread of COVID 19 as opposed to the study by Khasawneh A [12] where very few students were using mask to prevent the spread of COVID 19.

Since COVID 19 is a new disease there is limited information around, so it is all the more essential to

provide the medical students with authentic and relevant information.

In the midst of this crisis, the Indian health ministry has proposed to provisionally permit medical undergraduates of senior grades to treat COVID-19 patients [13]. COVID-19 is a global pandemic and all the countries are fighting with this disease. Many accept that medical students can be considered in a portion of the emergency and non-emergency clinical based jobs and

should be prearranged for health care workers shortage. [14].

Assessing the KAP of medical students is necessary because involving them for patient care in the current situation puts students at high risk of contracting the disease. Generally it is seen that medical undergraduates are sometimes consulted for some additional information for the prevention and management of the diseases. Therefore it is important that medical undergraduates should themselves be clear about the situation.

The results of this study can help to make public-health policies targeting the specific groups with low KAP and increase their KAP through well-planned, appropriate and tailored strategies. Consequently, health promotion activities are vital in improving KAP towards COVID-19, and it is recommended to conduct interventional studies using the results of this study. Positively, In the near future, India will be able to tackle COVID-19 through joint efforts of the Indian governments and other agencies.

Public health education is distinguished as an efficient measure to combat public health emergencies by organizing the public against such untoward conditions. It may influence society's KAP by extending proper knowledge, moderating panic, and reassuring optimistic attitudes and keeping the public complying with new practices. All these KAP elements are crucial to ensure effective prevention and control of the emergency.

Together, these results recommend that gender and education areas like medicine potentially affect students' responses to the COVID-19 pandemic and public health education attainment. This should be taken into account by educational and healthcare authorities. These factors should also be considered when they devise exigency plan or train them against similar public health calamities. The impact of COVID-19 is enormous, especially for under-developed countries. The long term lockdown is not the solution, and shopping malls, air routes, and borders cannot be kept closed for longer periods.

Therefore, currently and in the future, the KAP toward COVID-19 will show a fundamental part in defining people's promptness to adopt behavior alteration steps from health experts. With limited resources, countries like India should apply policies to keep their medical undergraduates rationalized about evolving public health and medical predicament.

Moreover, dedicated training programs for medical professionals at the Government level can supplement their knowledge of risks and preventive strategies related to COVID-19, which will help them deliver proper care to their patients and keep themselves safe from the.

Countries where the epidemic is hitting hard should implement strategies to keep their medical students updated about emerging public health and medical emergencies. Students should also be properly guided to proper sources of information during these times. When push comes to shove, students should also be equipped with medical knowledge, proper attitude, and good precautionary measures. Given current global situation, more frequent utilization of social media by medical schools to spread knowledge become a necessity and plans should be placed to implement such dissemination in early stages of medical and public health emergencies.

COVID-19 has also impaired the training of medical students across the world as a result of the closure of schools during the lockdown.

The health ministry in India also proposed provisional permission of medical undergraduates of senior grades to treat patients with COVID-19[15]. Therefore, we have a generation of enthusiastic future health care professionals and there is surely

widespread consensus that they can play an active role in the pandemic.

Positive results were seen in the study but there is constant need of updating knowledge of the health force since concepts about COVID-19 are evolving on an everyday basis. Implementing Periodic educational interventions, training programs and conducting webinars on infection control practices for COVID-19 for all health care workers and students can be very useful for improving awareness. Updates by the World Health Organization and government websites are best and authentic sources for health care workers to review their knowledge.

Limitation: Sampling bias due to convenience sampling used in the study limits the representativeness of the study. Although the students can be compared with the general population as they were newly admitted MBBS students with no exposure to the syllabus.

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