

Assessment of Knowledge and Attitude of Medical Students and Young Doctors Regarding EPI Vaccinations in Pakistan

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ABSTRACT

Aim: To assess the knowledge and attitudes of medical students and young doctors regarding EPI and influenza vaccinations in Pakistan.

Study Design: Cross sectional study

Place and Duration: King Edward Medical University, Fatima Jinnah Medical University, Allama Iqbal Medical College, Services Institute of Medical Sciences, Rawalpindi Medical University and Holy Family Hospital, Rawalpindi from 1st January 2018 to 30th June 2018

Methodology: Three hundred and twenty eight students of 3rd year MBBS, Final year MBBS and house officers were included. Both male and female participants were chosen. Detained students were excluded.

Results: Mean score in the knowledge section was 11.3/20. Theoretical knowledge score (mean=5.76/10) and Clinical knowledge score (mean=5.75/10). Wilcoxon signed rank test revealed no significant difference ($p=0.301$) between theoretical and practical knowledge scores. New House officers showed the best mean scores in knowledge (14/20) as well as attitude (23/26). Majority of the respondents fell in average category in the knowledge section and had a positive attitude (58%). Defects in knowledge regarding EPI were identified as only 29% participants were able to correctly identify Meningitis as one of the diseases covered by EPI while many falsely identified Influenza ($n=96$) and typhoid ($n=73$) as part of EPI regime.

Conclusion: The knowledge and attitude scores for students and young doctors were nearly average. This indicates a need to improve the teaching methods and to adopt a more effective approach for imparting knowledge of immunization about vaccine preventable diseases in Pakistan.

Keywords: knowledge, Young doctors, immunization

INTRODUCTION

Immunization has been widely accepted as a cost-effective method of combating vaccine-preventable diseases. The WHO estimates that current immunization programs save more than 3.2 million lives each year and full utilization of existing vaccines could save an additional 1.7 million lives per year.¹ Vaccination coverage for all vaccine preventable disease (VPDs) in Punjab is 65.6%² which is lower than the desired level of 95% that is needed for achieving herd immunity.

Despite compelling evidence of the value of vaccines in preventing disease, vaccine hesitancy has become a growing point of concern. Review of literature revealed various causes for sub-optimal vaccination coverage: (i) Beliefs, attitudes, perceived risks and myth³ prevalent in general population and underestimation of the importance of vaccines^{4,5} (ii) Inadequate knowledge among Health Care Workers (HCWs) due to which they failed to properly guide the patients.⁴ (iii) Poor attitude: lack of seriousness of the HCWs especially the physicians. Consequently, they failed to shape the views of society and counsel the patients to get vaccinated.^{5,6} (iv) Poor example setting (low immunization status⁶⁻⁹ among HCWs made them part of the transmission chain for infections. Many HCWs acquire infections from workplace and transmit them to patients⁵.

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The best way to tackle this vaccine hesitancy is to improve the knowledge and attitude of medical students as it determines their practice later as future doctors.¹⁰ Physician knowledge and support of vaccines greatly influences patient's decision to get vaccinated, and medical schools can cultivate this knowledge and positive attitudes towards vaccines. A study established a strong co-relation between knowledge about vaccines and clinical practice regarding immunization.¹¹ Thus reinforcing the belief that medical curriculum should emphasize more upon immunization at undergraduate and graduate level.

A review of several studies conducted showed that the main source of information and guidance for patients regarding vaccination was doctor's advice.⁵ Patients were more likely to be convinced by assertive physicians who confidently urged their patients instead of those who themselves had reservations regarding vaccine efficacy and safety. Media scares and propagandas continuously scare the public and a conflicted physician does a poor job at warring these myths away^{5,12}.

Pakistan has faced many challenges in the battle to achieve good vaccination coverage of its population. Still, it remains as one of the 3 countries with cases of polio still being reported. Of the many challenges faced by public health sector in eradicating polio, prevalence of misconception about vaccine side effects was an important hindering factor.¹³ Even with the recent epidemics of influenza claiming the lives of many people, influenza vaccination still wasn't widely accepted; with reservations

seen even in people working in the health system and renowned physicians. Poor knowledge among medical students about influenza and its vaccine was identified as culprit.^{6,10}

The knowledge acquired by students during 5 years of medical education is especially important as it later determines their attitudes and practice as young doctors. Young doctors deal with the highest patient load in government hospitals and thus their knowledge and general attitude is important as they are the ones who play a pivotal role in influencing patient's choices about vaccination.

MATERIALS AND METHODS

The cross sectional study was conducted at King Edward Medical University, Fatima Jinnah Medical University, Allama Iqbal Medical University, Services Institute of Medical Sciences, Rawalpindi Medical University and Holy Family Hospital, Rawalpindi from 1st January 2018 to 30th June 2018 and comprised 328 participants of 3rd year MBBS, Final year MBBS and house officers. Both male and female were chosen. Students of 1st, 2nd and 4th year MBBS, detained students and students from private medical colleges were excluded.

Data collection was done through a self-designed and structured questionnaire to assess the theoretical knowledge, clinical knowledge and attitude of respondents regarding the subject. Online questionnaire was made, and URL link was shared in study groups of medical students. Proper consent was taken from all participants. House Officers were given printed questionnaires. Some questionnaires were returned unfilled. Questionnaire had a total of 29 items. Cronbach's alpha for these 29 items was 0.8 showing a high reliability. Questionnaire was divided into three sections: First Section covered the Theory based questions, second section had clinical knowledge-based questions and last section had questions on attitudes. Theoretical knowledge of respondents was assessed by a set of 10 questions regarding the EPI vaccines, their schedule, ideal time of administration, number of doses and the diseases that could be prevented by administering EPI vaccines to children. This was done using Multiple choice questions with four options and a fifth "don't know" option. Clinical/Practical knowledge was assessed by a set of 9 questions that consisted of clinical scenarios aimed at testing the application of theoretical knowledge, knowledge of contraindication, and indications of vaccines. Participants were also asked an open-ended question about the diseases that health care workers should be vaccinated against. Attitude of respondents was assessed by asking them to rate 10 statements with five options: Strongly agree, agree, neutral, disagree, and strongly disagree. This was to determine the perception of participants regarding some popular myths, fears, effectiveness, safety and benefit of vaccines. The data was entered and analyzed through SPSS-22.

RESULTS

Number of participants included in the research is given in Figure 1. Participants in this research were included from

five different and well-recognized public medical institutes of Punjab (Table 1). There were 269 (82%) females as compared to males 59 (18%) [Table 2]. Mean score in the knowledge section was 11.28 ± 3.95 and the maximum score achievable was 20/20 which could not be achieved by a single subject ($n=0$). Knowledge section score was made of two parts: theoretical knowledge score and practical knowledge score. Mean theoretical knowledge score was 5.76 ± 2.14 and mean practical knowledge score was 5.75 ± 2.36 . Wilcoxon signed rank test revealed that there was no significant difference ($p=0.301$) between theoretical and practical knowledge scores (Table 3).

The percentage distribution of all 328 subjects into these categories. The percentage distribution of participants of the different "Year of education/training" in these three categories of knowledge is shown in Figures 2 and 3. For both theoretical and practical knowledge scores, more than 50% of total subjects included attained "Average" scores. For questions related to Attitude about vaccinations and immunization, 57.6% showed "Positive" attitude while 38.4% had a Neutral attitude

Fig. 1: Year of education/training

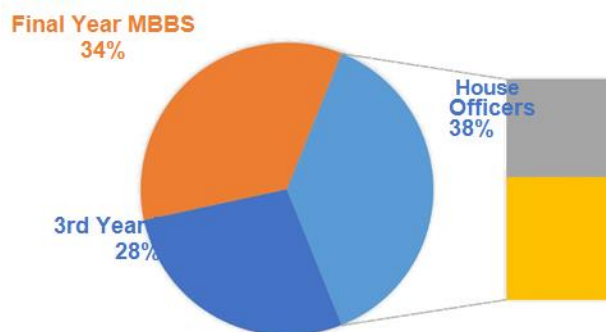


Table 1: Number of students from each respective institute

University	No.	%
King Edward Medical University/Mayo Hospital	208	63.4
Allama Iqbal Medical University/ Jinnah Hospital	50	15.2
Fatima Jinnah Medical University/ Ganga Ram Hospital	17	5.2
Services Institute of Medical Sciences/ Services Hospital	42	12.8
Rawalpindi Medical College and Holy Family Hospital	11	3.4

Table 2: Frequency of genders

Gender	No.	%
Male	59	18.0
Female	269	82.0

Table 3: Mean scores for knowledge, practical knowledge and attitude shown by different years of training/education

Year of education/training	Mean knowledge score	Mean practical knowledge score	Mean attitude score (out of 26)
3rd year MBBS	4	3	20
Final year MBBS	7	6	22
New house officers	7	7	23
Old house officers	6	7	22

Fig. 2: Knowledge levels shown by various classes of medical education

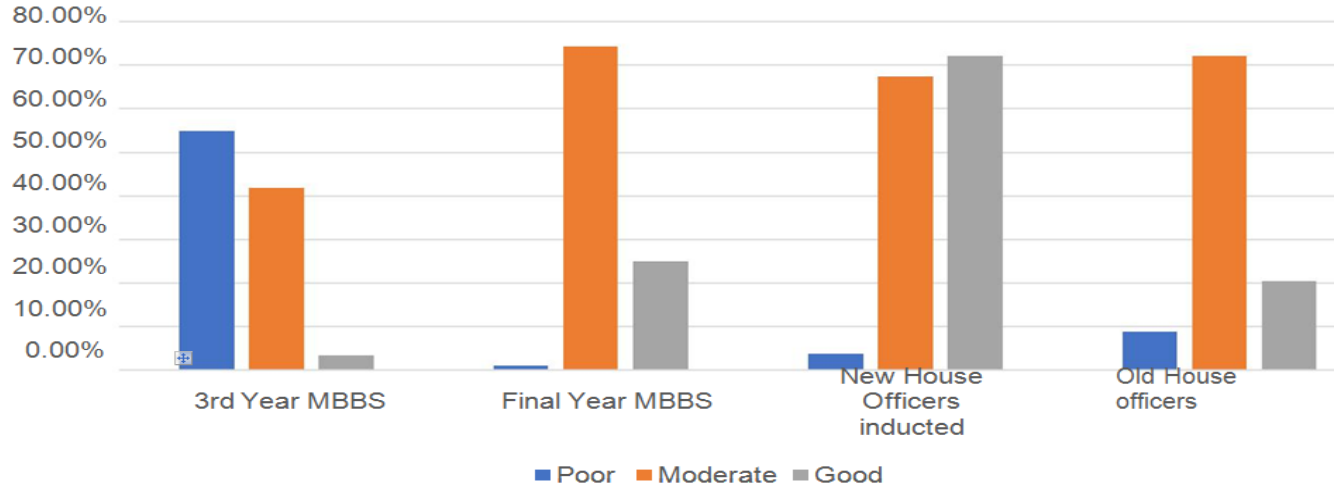
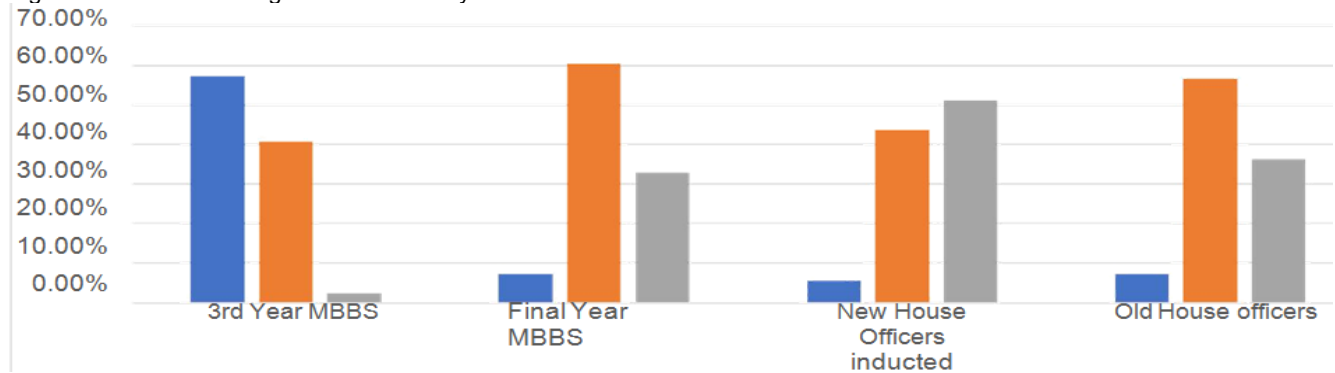


Fig. 3: Practical knowledge levels shown by various classes of medical education



DISCUSSION

The female participants in this research outnumbered the males significantly. This is to be expected considering the greater number of female students admitted to government medical institutes in Pakistan. Similar percentages were seen in research conducted in various medical institutes in Karachi¹⁴.

Overall results from this research showed “Average” knowledge scores among the students and house officers. These results are comparable to results from a similar research carried out among medical students of Saudi Arabia.⁷ Participants showed a general positive attitude towards vaccines which is similar to research carried out in Serbia¹¹.

Third year students showed the poorest results in both knowledge and practical information although they had started their ward rotations and patient exposure. They were also familiarized with vaccines for various infections as part of curriculum of Microbiology. Still, their lack of knowledge can be explained as they hadn’t been taught the subject of community medicine yet that is normally covered in 4th Year. The research showed an improvement in knowledge score with age and increased number of years

spent in the medical institutions and ward rotations similar to researches conducted in Karachi¹⁴⁻¹⁶.

New House Officers showed the best knowledge and attitude scores. This could be due to the fact they had fresh knowledge after giving Final professional exam. In medical colleges of Pakistan, the knowledge of EPI schedule, all vaccines to be administered during this schedule and the importance of the included vaccines is greatly stressed upon and repeatedly taught through the subjects of Microbiology and Immunology (3rd Year), Community medicine (Fourth Year), and Pediatrics (Final year).

This research showed that despite so much interest and stress on EPI vaccines, there are still many misconceptions about EPI diseases and related immunization among medical students and house officers. All medical students and doctors should be able to correctly identify the 9 EPI preventable diseases but only an alarming 9.8% could do so according to this study. Poorly informed health care workers lead to poor immunization prevalence and vaccination status among general populace as shown by the results of the research conducted in peri-urban area near Karachi¹⁷

The results of this research showed a lack of awareness about mode of transmission of hepatitis B especially in pregnant women. Similar results were shown

in a research conducted in medical colleges of Karachi and Sudan^{14,18}

Hepatitis B vertically transmits to the fetus of infected mother but only 40% respondents knew about the importance of Hepatitis B vaccination in unimmunized pregnant women. These results coincide with the results of the study conducted among health care workers and nurses in Amazonas state hospitals¹⁹.

35.4% of the students analyzed in this research had the misconception that a mild febrile illness is a contraindication to the administration of polio vaccine. Polio has now been eradicated from the entire world except two or three nations; one of them being Pakistan. Considering the seriousness of the illness, better knowledge and awareness about its dosage, administration schedule and its contraindications is to be expected. Similar knowledge gaps were identified about the incubation period of poliovirus (19.5%), management issues (31.9%), use of polio vaccine in mild illnesses (34.7%) and the consequences of the polio virus (36.9%) in a research conducted in major referral public hospitals in Quetta and Peshawar²⁰.

Considering the recent outbreaks of influenza in many parts of Pakistan, knowledge about its immunization and transmission is vital for all medical students, physician and health care workers. This research showed that respondents' knowledge was deficient regarding many aspects of the influenza vaccine as only 54% knew about the ideal time of administration and 55% about its indication in COPD patients. Similarly, an analysis of the knowledge scores in a research conducted in Karachi revealed that only 49% of the physicians and 31.6% of the medical students had adequate knowledge about influenza disease and its vaccine²¹.

Majority of the participants in this research were of the opinion that education and teaching methods about immunization and vaccinations could be improved to make the information and imparted knowledge stay longer and have more impact. Similar responses were collected in a research conducted in various public medical institutes of Karachi.

CONCLUSION

The knowledge and attitude scores for students and young doctors were nearly average, not excellent. These results indicate a need to improve the teaching methods and a dire need to adapt a more effective approach for imparting knowledge of vaccination and immunization about important preventable diseases in Pakistan. Well informed doctors, physicians with a positive approach towards prevention of infectious diseases and all diseases included in EPI regime will ensure the eradication and minimum outbursts of such diseases in our community.

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