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# Acceptance of COVID-19 Vaccine Among Undergraduate Students

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## ABSTRACT

***Objective:*** To assess the acceptance of the COVID-19 vaccine among medical and non-medical undergraduate students and compare the COVID-19 vaccine receptivity differences between medical and non-medical undergraduate students.

***Study Design:*** Cross-sectional study.

***Place and Duration of Study:*** Bahria University Medical & Dental College, and Bahria University Karachi Campus Pakistan, from Mar to Jun 2021.

***Methodology:*** In this study, a total of 392 participants, were selected by non-probability convenience sampling. Students aged 19-26 years were enrolled. Participants were required to sign a voluntary consent form prior to participation. The questionnaire included 21 questions inclusive of demographic characteristics, insight regarding COVID-19 disease, prior EPI vaccine exposure, attitude towards COVID-19 vaccine, including the importance of vaccine to end the pandemic, acceptance of vaccine along with reasons and non-acceptance and sent by email as a Google form to participants.

***Results:*** There were 171(43.6%) males and females 218(55.6%). The mean age of participants was 20.7±2.29 years. 217(55.4%) students were from the MBBS programs, and 175(44.6%) were from non-MBBS programs. COVID-19 vaccine acceptability was better amongst medical students, with 182(83.9%) considering it safe for use in contrast to 5(2.8%) non-medical students who considered it safe.

***Conclusion:*** The comparison of knowledge and attitudes towards accepting the COVID-19 vaccine between medical students and non-medical students revealed better acceptance amongst undergraduate medical students than non-medical undergraduate students.

**Keywords:** Acceptance, COVID 19, Knowledge, Non-acceptance, Students, Vaccine.

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## INTRODUCTION

A novel coronavirus, an RNA virus with a structure resembling SARS-CoV-1, has produced a drastic Severe Acute Respiratory Syndrome (SARS) outbreak globally.[1] The efforts to protect workers from COVID-19 can lead to good preparedness for other infections in future.[2] Chief preventable targets include transmission and lowering new infections.[3]

It is a perpetuity among those who accept vaccines without a doubt to thorough refusal devoid of a doubt.[4,5] Regrettably, around a third of final-year medical students feel they need more preparation to deal with the clinical aspects of vaccination.[6]

Various vaccines have already been launched into the market for the control of COVID- 19.[7] Although the use of human vaccines has led to quite a lot of achievement, the potential for further impact is necessary. Scientific advances can be applied to enhanced production as well as simplification of the delivery of vaccines.[8] Likewise, social and political commitment to immunization programs needs to be maintained to acquire the full benefits of these excellent medical discoveries.[9] COVID-19 has remarkably impacted the educational system, particularly medical education and career.[10]

As the reception of COVID-19 vaccines by medical students is important, this study aims to assess the response of medical students towards the COVID-19 vaccine. The study will constitute a cornerstone study, which can be used as a baseline study to assess medical students' response to future novel vaccines.

## METHODOLOGY

The cross-sectional study was conducted in March 2021 at Bahria University Medical and Dental College Karachi and Bahria University Karachi campus Pakistan, following ethical approval from the Ethical Review Committee (vide ERC 26\2021). Sample size was calculated taking 57.6% prevalence of participants who intended to be vaccinated.[11] The questionnaire was hosted in the Google form and distributed to students as a Google form link employing emails.

**Inclusion Criteria:** The participants in this study were medical and non-medical undergraduate students. The

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non-medical participants were from BDS, DPT, ACCA, BS Accounting and Finance, BSCS, BCS Engineering, CS BSE, Pharm D, and BS Psychology.

**Exclusion Criteria:** Non-consenting students were excluded.

The questionnaire was designed as most suited to the research. The questionnaire addressed all relevant areas concerning inquiring about the COVID-19 vaccine. An informative consent statement was added at the beginning of the online questionnaire, and participants were provided with informed consent to be digitally signed before participating in the survey. Confidentiality and privacy of data were ascertained during the study and data were assembled and stored in secure folders that could only be accessed by researchers and protected from unauthorized access.

Statistical Package for Social Sciences (SPSS) version 21.0 was used for the data analysis. Quantitative variables were expressed as mean±SD and qualitative variables were expressed as frequency and percentages. Chi-square test was applied to find out the association. The *p*-value of ≤0.05 was considered statistically significant.

## RESULTS

In this study, males were 171(43.6%), and females were 218(55.6%). In addition, participants in this study who were from Karachi, including individuals from all districts of Karachi and individuals from locations other than Karachi, were also part of this study. Participants were inquired regarding the side effects of the vaccine being likely to be worse than COVID-19 itself. The response included yes (100, 25.5%) and no (290, 24.0%).

Knowledge regarding novel coronavirus, self-rated overall health, immunity by exposure to an infected individual, herd immunity being sufficient to protect everyone and side effects of the vaccine being likely to be worse than COVID-19 itself was significantly more $p<0.05$ amongst undergraduate medical students. The difference in attitude in connection with the COVID-19 vaccine is shown in Table-I. The difference of opinion regarding vaccine acceptance between medical and non-medical students is shown in Table-II.

## DISCUSSION

University students are assumed to be a knowledgeable and aware group of society with an open attitude. During the current COVID-19 era, the public service role of students is expected. It is expected particularly for university students in this role, in Health Schools/Faculties, to promote clear scientific-based helpful messages, for example, the role of vaccination as a cornerstone in public health.[11]

**Table-I: Attitude regarding Vaccine Difference between MBBS and non-Medical Students (n=392)**

| Difference in Attitude Towards Vaccine between MBBS and Non MBBS | Study Groups | | *p*-value |
|---|---|---|---|
| | Group-A (MBBS) (n=217) | Group-B (Non-Medical) (n=175) | |
| **If a COVID-19 vaccine is made publicly available and it would need to be administered yearly (similar to the flu shot),would you get vaccinated?** | | | |
| Yes | 200(52.7%) | 65(60.0%) | <0.001 |
| No | 17(47.3%) | 110(40.0%) | |
| **If a vaccine for COVID-19 was made available and you were told it would protect half of the people who received it, would you get vaccinated?** | | | |
| Yes | 190(29.1%) | 25(30.9%) | 0.012 |
| No | 27(70.9%) | 150(69.1%) | |
| **Other people being vaccinated against COVID-19 will be helpful in controlling the Pandemic?** | | | |
| Yes | 170(78.34) | 20(11.43%) | <0.001 |
| No | 47(21.66%) | 155(88.57%) | |
| **A vaccine is important to end the COVID-19 pandemic?** | | | |
| Yes | 205(94.47%) | 50(28.57%) | 0.092 |
| No | 12(5.53%) | 125(71.43%) | |
| **I am likely to be vaccinated for COVID-19 when a vaccine becomes available?** | | | |
| Yes | 180(82.95%) | 30(17.14%) | <0.001 |
| No | 37(17.05%) | 145(82.86%) | |

**Table-II: COVID-19 Vaccine Acceptability difference between MBBS and non-Medical Students (n=392)**

| Variables | Group-A (MBBS) (n=217) | Group-B (Non-Medical) (n=175) |
|---|---|---|
| **It has side effects** | | |
| Yes | 90(41.5%) | 172 (95.6%) |
| No | 122(56.2%) | 3(1.7%) |
| **It is safe for use** | | |
| Yes | 182(83.9%) | 5(2.8%) |
| No | 31(14.3%) | 170(94.4%) |
| **It is effective for use** | | |
| Yes | 190 (87.6%) | 2(0.7%) |
| No | 24(11.1%) | 173(62.7%) |
| **I need the vaccine** | | |
| Yes | 170(59.9%) | 63(35.6%) |
| No | 45(38.2%) | 112(63.3%) |
| **Against mutating organism** | | |
| Yes | 198(91.2%) | 16(9.0%) |
| No | 19(8.8%) | 159(89.8%) |
| **I have trust on Pharmaceutical companies** | | |
| Yes | 132(60.8%) | 42(23.7%) |
| No | 85(39.2%) | 133(75.1%) |
| **It is easily available** | | |
| Yes | 184(22.6%) | 38(21.5%) |
| No | 33(77.4%) | 137(77.4%) |
| **I dread the complications of vaccine** | | |
| Yes | 49(22.6%) | 144(81.4%) |
| No | 168(77.4%) | 31(17.5%) |

Our study contrasts with the study by Lucia *et al*. wherein medical students displayed COVID-19 vaccine hesi-tancy.[12] Similar to the study by Leela *et al*. our study revealed an elevated rate of acceptability in medical students mentioning acceptance towards getting vacci-nated.[13] In our study, medical students were of the view that other people being vaccinated against COVID-19 would help control the pandemic; this was similar to the study by Jain *et al*. wherein over three fourth medical students deemed COVID-19 vaccine mandatory for both health care workers and international travellers.[14] Grech *et al*. exhibited the highest willingness towards getting vaccinated among healthcare students, medical students were the most willing to be vaccinated.[15] Similar to the study by Dube *et al*. vaccine acceptability was highest amongst medical students.[16] Likewise, synchronous with a study by Perger *et al*. non-medical students were most hesitant towards the vaccine.[17] Similar to the study by Dror *et al*. in our study, participants who exhibited acceptability had a fear of the virus.[18]

## CONCLUSION

The comparison of knowledge and attitudes towards accepting the COVID-19 vaccine between medical students and non-medical students revealed better acceptance amongst undergraduate medical students than non-medical under-graduate students.

**Conflict of Interest:** None.

**Author's Contribution**

Following authors have made substantial contributions to the manuscript as under:

MAA: Conception, interpretation of data, drafting the manu-script, approval of the final version to be published.

MAB: Study design, data analysis, drafting the manuscript, cri-tical review, approval of the final version to be published.

SJ: Critical review, approval of the final version to be published.

NK: Data acquisition, interpretation of data, approval of the final version to be published.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investi-gated and resolved.

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