KNOWLEDGE, ATTITUDE AND PRACTICE TOWARDS COVID-19 VACCINE AMONG PARAMEDICS AND SUPPORT STAFF AT CENTRAL PARK TEACHING HOSPITAL LAHORE, PAKISTAN

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Author’s Contribution

Dr. Shehnaz Khan- Study Design, Conceived idea, Data Collection and Proof reading.

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Dr. Ejaz Mahmood Ahmad Qureshi- Editing, data analysis and final proof reading of research.

ABSTRACT

Background: Coronavirus disease 2019 (COVID-19) first appeared in the city of Wuhan, China, which spread as an epidemic and later became a pandemic. Control measures are social distancing, washing or sanitizing hands but the most effective health intervention is immunization. Countries world-wide have accelerated their research for development of Covid-19 vaccine. The greatest barrier to the campaign’s success was public hesitancy to be vaccinated. **Objective:** To determine people’s knowledge and perception of the disease and to find out their willingness for vaccination.

Methodology: A cross-sectional study was carried out in July 2021 to December 2021 in Lahore. The data was collected from 122 paramedic and supporting staff at Central Park Medical College, Lahore, Pakistan using stratified random sampling.

Results: Nearly 66.4% of the respondents were female, 86% of the respondents were vaccinated, and 100% of the respondents mentioned that vaccine provides protection against disease. In general, the attitude toward COVID vaccine was positive.

Conclusion: Nearly all the participants mentioned that COVID vaccine provides protection against disease and nearly half said that it gives long-term immunity. Knowledge and practice towards vaccine was satisfactory among the general population. Still there is a need for more clinical trial of vaccine and to spread awareness about its protection against disease.

Keywords: COVID 19 Vaccine, Knowledge, Attitudes, Practice.

INTRODUCTION

Coronavirus disease (COVID-19) first appeared in the city of Wuhan, China, which spread as an epidemic and later became a pandemic1. The initial clinical sign of the SARS‐CoV‐2 was pneumonia which allowed case detection. Other symptoms include fever, cough, fatigue, nasal congestion, and other signs of upper respiratory tract infections. The infection can progress to severe disease with dyspnoea and severe chest symptoms corresponding to pneumonia in approximately 75% of patients, as seen by computed tomography on admission2. Control measures are social distancing, washing or sanitizing hands, use of new antiviral drugs and being vaccinated with an effective vaccine3. The most successful and cost- effective health intervention to prevent infectious diseases is immunization. Countries world-wide have accelerated their research for development of Covid-19 vaccine4. The World Health Organization (WHO) has identified vaccine hesitancy as one of the top 10 threats to global health in 2019. It is a reluctance, refusal or delay in acceptance of vaccination despite its availability5. The United States initiated a vaccination program in December 2020, a year after the first known case of COVID detection, where more than 40 million Americans received their first dose of vaccine developed by pharmaceutical companies. The greatest barrier to the campaign’s success was public hesitancy to be vaccinated6.

Factors for reluctance or hesitancy were effectiveness of the vaccine, recommendation of vaccine by a doctor, the number of people being infected by the virus, their medical history, age, and upcoming travels outside their country7. The beliefs and attitudes of people in U.K about variance in vaccination intention were similar to those of U.S.A .residents like efficacy of the vaccine, social norms about COVID vaccination, and greater perceived likelihood of being infected without vaccination8.

**MATERIALS AND METHODS**

A cross-sectional study was carried out to collect information on knowledge, attitude and practice towards COVID vaccine. The data was collected from July 2021 to December 2021 when vaccine was available to adults in Pakistan. The data was collected from 122 paramedic and supporting staff at Central Park Medical College, Lahore, Pakistan using stratified random sampling. Equal allocation method was used to select from two groups i.e. paramedic staff and supporting staff. Most of the respondents were not willing to participate in the study because they were not willing for vaccine shot and thought there might be some risk involved. The ethical approval of the study was obtained from the Institutional Review Board of Central Park medical College, Lahore, Pakistan. A self-design questionnaire was used to collect information. The reliability of the designed questionnaire was tested through Cronbach's alpha and was found to be 64.5%. The questionnaire collected information in two sections. One was based on collecting socio-economic and demographic information. Other was based on collecting information relevant to the perception towards COVID vaccine, knowledge about various vaccine types and vaccination status of each participant. Participants were explained about the objective of the research and before collecting information, a written consent was obtained from each participant.

**Results**

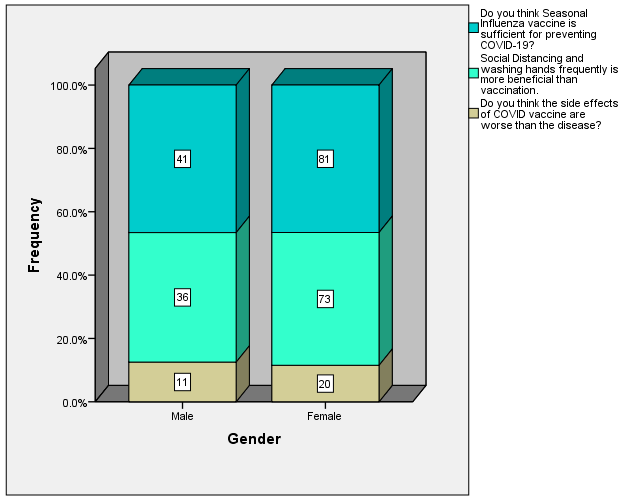
The mean age of the participants was 23.41 + 5.18 SD in years. The proportion of female participants was two third. About 33.6% of the participants were male. The association of baseline characteristics of the participants with knowledge and practice of COVID vaccine was given in Table 1. Knowledge was significantly associated with father’s education and occupation. Statistically significant association was seen between attitude towards COVID vaccine and participant’s educational level and occupation. Most of the participants were fully or partially vaccinated. Vaccination status of the participant was related to the educational level of parents and occupation (Table 1). Nearly one fourth of the respondents said that the side effects of COVID vaccine are worse than the disease (Table 2). Approximately 11% said that washing hands and wearing masks is more beneficial to prevent the disease. More than 25% of the respondents said that seasonal influenza vaccine is enough to prevent COVID. Major barrier against COVID vaccine was the thought that seasonal influenza vaccine is sufficant followed by maintaing social distancing and wearing mask (Figure 1).

**Table 1: Test of Association between Baseline characteristics with knowledge, attitude and practice**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Baseline Factors** | **knowledge** | | **Attitude** | | | **Practice** | | |
| **Educational Level** | **No** | **Yes** | **No** | **May be** | **Yes** | **No** | **Partially** | **Fully** |
| Illiterate | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Matric (Grade 10) or less | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Intermediate or equivalent | 01 | 18 | 0 | 06 | 13 | 01 | 04 | 14 |
| Graduation | 06 | 77 | 03 | 13 | 67 | 10 | 13 | 60 |
| Post-graduation or above | 04 | 16 | 03 | 07 | 10 | 06 | 04 | 10 |
| **Chi-square (p-value)** | 3.59 (0.166) | | **11.45 (0.022)** | | | 6.55 (0.162) | | |
| **Father’s Educational level** | | | | | | | | |
| Illiterate | 01 | 08 | 0 | 02 | 07 | 03 | 02 | 04 |
| Matric or less | 03 | 05 | 02 | 01 | 05 | 03 | 02 | 03 |
| Intermediate or equivalent | 02 | 17 | 02 | 04 | 13 | 05 | 07 | 07 |
| Graduation | 04 | 47 | 02 | 11 | 38 | 05 | 05 | 41 |
| Post-graduation or above | 01 | 34 | 0 | 08 | 27 | 01 | 05 | 29 |
| **Chi-square (p-value)** | **9.72 (0.045)** | | 10.67 (0.221) | | | **24.61 (0.002)** | | |
| **Mother’s Educational Level** | | | | | | | | |
| Illiterate | 01 | 10 | 0 | 02 | 09 | 04 | 01 | 06 |
| Matric or less | 02 | 14 | 02 | 05 | 09 | 05 | 06 | 05 |
| Intermediate or equivalent | 03 | 17 | 01 | 07 | 15 | 05 | 05 | 10 |
| Graduation | 03 | 38 | 02 | 07 | 32 | 03 | 04 | 34 |
| Post-graduation or above | 02 | 32 | 01 | 08 | 25 | 0 | 05 | 29 |
| **Chi-square (p-value)** | 1.66 (0.798) | | 4.78 (0.781) | | | **28.76 (0.000)** | | |
| **Profession before Job at Medical College** | | | | | | | | |
| Jobless/ housewife | 04 | 24 | 03 | 07 | 18 | 05 | 01 | 22 |
| Student | 02 | 37 | 0 | 07 | 32 | 01 | 07 | 31 |
| Private Job | 02 | 22 | 01 | 06 | 17 | 08 | 05 | 11 |
| Government Job | 0 | 15 | 01 | 05 | 09 | 01 | 06 | 08 |
| Businessman | 02 | 12 | 0 | 01 | 13 | 02 | 02 | 10 |
| Daily wager | 0 | 01 | 01 | 0 | 0 | 0 | 0 | 01 |
| Retired Pensioner | 01 | 0 | 0 | 0 | 01 | 0 | 0 | 01 |
| **Chi-square (p-value)** | **13.83 (0.032)** | | **29.01 (0.004)** | | | **23.11 (0.027)** | | |
| **Total** | 11 | 111 | 06 |  |  | 17 | 21 | 84 |

**Table 2: Knowledge, Attitude and Practice of Participants towards COVID vaccine**

|  |  |  |
| --- | --- | --- |
| **Statement** | **No**  ***n (%)*** | **Yes**  ***n (%)*** |
| **Knowledge** | | |
| Are you aware of COVID vaccine types? | 11 (9.0%) | 111 (91.0%) |
| Do you think COVID vaccination is effective? | 06 (4.9%) | 116 (95.1%) |
| Do you think COVID vaccination is safe? | 04 (3.3%) | 118 (96.7%) |
| Do you think vaccination is beneficial for you? | 07 (5.7) | 115 (94.3%) |
| **Attitude** | | |
| If a COVID vaccine is available to you, would you get it? | 10 (8.2%) | 112 (91.8%) |
| Vaccination is necessary for all age-groups. | 02 (1.6%) | 120 (98.4%) |
| Vaccination will provide protection against COVID-19. | 01 (0.8%) | 121 (99.2%) |
| Do you think COVID-19 will be successfully controlled with vaccination? | 22 (18.0%) | 100 (82.0%) |
| Do you think the side effects of COVID vaccine are worse than the disease? | 91 (74.6%) | 31 (25.4%) |
| Do you think vaccination will provide long term immunity? | 61 (50.0%) | 61 (50.0%) |
| **Practice** | | |
| Are you vaccinated? | 17 (13.9%) | 105 (86.1%) |
| Will you allow your family members to be vaccinated? | 06 (4.9%) | 116 (95.1%) |
| Social Distancing and washing hands frequently is more beneficial than vaccination. | 13 (10.7%) | 109 (89.3%) |
| Do you wear mask regularly while going outside? | 09 (7.4%) | 113 (92.6%) |



**Figure 1: Barriers towards COVID vaccine**

**DISCUSSION**

National survey conducted among the general public of Pakistan on the beliefs and attitudes about myths and conspiracy theories about Covid-19 vaccine showed a low acceptance rate for vaccination due to these rumors9. We intend to conduct this study to know about people’s knowledge and perception of the disease as well as to find out their willingness for vaccination.

Hand washing/ sanitizing or wearing surgical masks were not enough protective measures and the need for a vaccine became urgent. Countries worldwide expedited their research for the development of a vaccine but the main concern for it to be effective was to be acceptable and usable among majority of the population as well as public willingness for vaccination10.

Regarding the efficacy of vaccination and willingness to be vaccinated, 74% of our population thought that the vaccine was effective and they were willing for vaccination. About 21% were uncertain and 5% thought that the vaccine was non-effective. Comparison with a study done among undergraduate medical students in Rajasthan, India where 64.5% people were vaccinated and 24.9% were not11. Vaccine hesitancy was found in one out of every ten medical students11. The results are somewhat similar to our responses.

Among the Egyptian population 83% were willing to be vaccinated and 83% said they would encourage family and friends to get vaccinated1. Another awareness, attitude and practice analytic study during the Covid-19 pandemic in Riyadh, Saudi Arabia, showed that the educated and high -income group had more awareness of the disease12.

A study on public perceptions and behaviors towards a future Covid vaccine in Australia, showed 80% acceptance and willingness of the male participants for vaccination. 83% agreed that the vaccines are effective in preventing disease, 14% were uncertain and 5.8% disagreed for vaccination13. In the same study an online survey of the French population showed 74% acceptance for vaccine. In Indonesia the rate of acceptance ranged from 67-95% depending on the effectiveness of the vaccine. The acceptance rate in some countries of Europe like Denmark, Germany and Portugal was 73%13.

In our study,11% of males and 20% of females thought that the side effects of Covid-19 vaccine were worse than the disease itself. Nearly 36% of males and 73% of females believed that social distancing and hand washing were more effective for prevention of disease. About 41% males and 81% females thought that the seasonal flu vaccine was enough for prevention of Covid-19 infection. Finally in our study 99.2% of the respondents thought that Covid-19 vaccine provides protection against the disease and 50% thought that the vaccine provides long term immunity.

**Conclusion**

Most of the participants knew about the various vaccine types and they thought that COVID vaccines are effective. Most of the respondents were of the opinion that the vaccine is moderately safe. Nearly three fourth of the candidates were fully vaccinated and most of them agreed that the vaccine successfully controls the disease, provides protection, is beneficial and half of them thought that it provides long term immunity. Overall, the acceptance and knowledge were satisfactory among the general population.

**References**

1. Asselah T, Durantel D, Pasmant E, Lau G, Schinazi RF. COVID-19: Discovery, diagnostics and drug development. Journal of hepatology. 2020 Oct 8.
2. Velavan TP, Meyer CG. The COVID‐19 epidemic. Tropical medicine & international health. 2020 Mar;25(3):278.
3. Sharma O, Sultan AA, Ding H, Triggle CR. A Review of the Progress and Challenges of Developing a Vaccine for COVID-19. Frontiers in immunology. 2020 Oct 14;11:2413.
4. Wang J, Jing R, Lai X, Zhang H, Lyu Y, Knoll MD, Fang H. Acceptance of COVID-19 Vaccination during the COVID-19 Pandemic in China. Vaccines. 2020 Sep;8(3):482.
5. Soares P, Rocha JV, Moniz M, Gama A, Laires PA, Pedro AR, Dias S, Leite A, Nunes C. Factors associated with COVID-19 vaccine hesitancy. Vaccines. 2021 Mar;9(3):300.
6. Goldfarb JL, Kreps S, Brownstein JS, Kriner DL. Beyond the First Dose—Covid-19 Vaccine Follow-through and Continued Protective Measures. New England Journal of Medicine. 2021 Apr 28.
7. Reiter PL, Pennell ML, Katz ML. Acceptability of a COVID-19 vaccine among adults in the United States: How many people would get vaccinated?. Vaccine. 2020 Sep 29;38(42):6500-7.
8. Sherman SM, Smith LE, Sim J, Amlôt R, Cutts M, Dasch H, Rubin GJ, Sevdalis N. COVID-19 vaccination intention in the UK: results from the COVID-19 vaccination acceptability study (CoVAccS), a nationally representative cross-sectional survey. Human vaccines & immunotherapeutics. 2021 Jun 3;17(6):1612-21.
9. Arshad MS, Hussain I, Mahmood T, Hayat K, Majeed A, Imran I, Saeed H, Iqbal MO, Uzair M, Ashraf W, Usman A. A National Survey to Assess the COVID-19 Vaccine-Related Conspiracy Beliefs, Acceptability, Preference, and willingness to pay among the general population of Pakistan. Vaccines. 2021 Jul;9(7):720.
10. Elgendy MO, Abdelrahim ME. Public awareness about coronavirus vaccine, vaccine acceptance, and hesitancy. Journal of Medical Virology. 2021 Dec;93(12):6535-43.
11. Jain J, Saurabh S, Goel AD, Gupta MK, Bhardwaj P, Raghav PR. COVID-19 vaccine hesitancy among undergraduate medical students: results from a nationwide survey in India. medRxiv. 2021 Jan 1.
12. Alahdal H, Basingab F, Alotaibi R. An analytical study on the awareness, attitude and practice during the COVID-19 pandemic in Riyadh, Saudi Arabia. Journal of infection and public health. 2020 Oct 1;13(10):1446-52.
13. Seale H, Heywood AE, Leask J, Sheel M, Durrheim DN, Bolsewicz K, Kaur R. Examining Australian public perceptions and behaviors towards a future COVID-19 vaccine. BMC Infectious Diseases. 2021 Dec;21(1):1-9.