

HESITANCY, ATTITUDE AND SIDE EFFECTS OF COVID-19 VACCINE BOOSTER DOSE AMONG PHYSICAL THERAPISTS IN PAKISTAN: A CROSS-SECTIONAL SURVEY

Ayesha Jamil^{1*}, Surooj Nadeem², Waqas Malik³, Adeena Shahzad⁴

¹Physiologic Physiotherapy Clinic, Lahore, Pakistan

²Social Security Hospital, Lahore, Pakistan

³Raza-e-Habib Welfare Hospital, Lahore, Pakistan

⁴Mehboob Ali Clinic, Kot Abdul Malik, Sheikhpura, Pakistan

ABSTRACT

Many variants of the COVID-19 virus demand the need for vaccines to promote and maintain immunity among healthy and immune-compromised people. Physiotherapists have close contact with the patients so they must be fully vaccinated. However, the acceptance of vaccine and booster doses may vary among different regions. **Objectives:** To determine the hesitancy, attitude, and side effects of COVID-19 vaccine booster dose among physical therapists in Pakistan. **Methods:** This cross-sectional study was conducted in three months and data was collected from 511 physiotherapists through the online survey using snowball sampling. A structured questionnaire was used to find out the hesitancy, attitude, and side effects of booster doses. **Results:** Around 232 (45%) of the participants were of age 31-35 years, 264 (53%) were females, 323 (63%) were married, and 408 (80%) had a master's degree. The majority were not hesitant towards vaccination with a total of 404 (79%) had been offered vaccination, 383 (75%) had taken both the first and second dose of the COVID-19 vaccine, a total of 341 (67%) showed a willingness to take vaccine every year and 301 (59%) agreed for the requirement of booster dose. While malaise and fatigue were the most commonly reported side effects of booster dose. **Conclusion:** The majority of the physical therapists in Pakistan are less hesitant, are more agreeable to the need for booster doses, and experience minimal side effects after booster dose administration.

Keywords: Attitude, Booster dose, COVID-19 vaccine, Hesitancy, Side effects, Physical therapist

INTRODUCTION

Various infectious disease outbreaks have had a tremendous influence on the lives of millions of people¹. The rapid emergence of multiple severe pneumonia cases that afterward through genome sequencing technology, identified the disease's named as severe acute respiratory syndrome (SARS), or COVID-19². Later on, four strains of COVID-19, named alpha, beta, gamma, and delta,

were identified by the World Health Organization (WHO). Since the emergency authorization of several COVID-19 vaccines in December 2020, the WHO has authorized 10 vaccinations, and 33 COVID-19 vaccines have been licensed by at least one country³. Two doses of COVID-19 vaccinations are important to combat potentially fatal SARS-CoV-2 infections and two booster dosages, in

addition, have been used to increase immunity⁴.

During the initial phase of the vaccine campaign, owing to a limited supply of dosages, immunization was first administered to frontline workers including healthcare providers, police employees, and old and vulnerable persons^{5,6}. Following that, the immunization was extended to other occupations such as teachers and the younger age groups, and then to children⁷.

Perceptions and attitudes about the advantages and risks of vaccination are frequently based on vaccine safety and effectiveness claims⁸. Since the discovery of the COVID-19 vaccines, several rumors have been circulated⁹. Vaccinations have been linked to a variety of side effects, including infertility, low platelet counts, internal bleeding, cerebral venous thrombosis, and mortality. These adverse medical consequences have had a substantial impact on vaccination programs in several nations¹⁰. Despite the seriousness of the disease, COVID-19 vaccination hesitancy is a worldwide issue with several people either hesitant to get it or avoiding it entirely. People are also concerned about the possible negative effects of the COVID-19 vaccination and vaccine booster dose¹¹.

Physical therapists who work in hospitals, rehabilitation centers, and long-term care are in the high-risk group for COVID-19 exposure because of the direct mode of treatment. During the pandemic situation, the role of physical therapists was extended from traditional care providers to planning and organizational leadership¹². The perception, attitude, and hesitancy towards vaccination and side effects after administration may be helpful to carefree and dutiful working capacity. In the COVID-19 pandemic, and given the unique role of physical therapists in the healthcare system, it is imperative to understand their perspectives and attitudes towards COVID-19 booster doses. Therefore, this study aims to find out the hesitancy, attitude, and side effects of booster doses among physical therapists. The findings of this study may add to the existing literature on vaccine hesitancy and contribute to the develop-

ment of tailored strategies to address concerns and increase vaccine acceptance among physical therapists.

MATERIALS AND METHODS

This cross-sectional survey was conducted in three months from July to September 2022. The ethical approval for the study was taken from the Sehat Medical Complex, Lahore, Pakistan (SMC/REC-/01-07-2022). The sample size was 511, calculated through Epitool software using an estimated proportion of 0.62, confidence interval of 0.98, and precision of 0.05. Data was collected from physiotherapists through an online Google form¹³ using a self-administered questionnaire containing demographic details, infection history, questions related to the administration of the COVID-19 vaccine, booster dose, and related side effects^{14,15}. A snowball sampling technique was used to collect the data, in which the link of the form generated was first spread to different online forums of the physiotherapy community in Pakistan, in contact with the researchers and then participants may further share it to their respective networks. Physiotherapists aged 25 to 40 years, both male and female working in public and private sectors were invited to participate in the study. Data from technicians and those forms with incomplete information were excluded from the analysis¹³. The outcomes of the study were hesitancy, attitude, and side effects of COVID-19 Booster dose. Hesitancy and attitude towards booster dose were assessed by using a questionnaire designed by The University of New Mexico, Health Sciences Centre, in the United States¹⁵. This questionnaire has a set of questions for assessing hesitancy and attitude. The acceptance of the statement of yes or no represents their tendency towards COVID-19 vaccine booster dose.

Statistical Analysis

The data was entered and analyzed using SPSS Version 23. Categorical data was presented in the form of frequency and percentage. Chi-square and cross-tabulation were applied to find gender and age-wise associations with hesitancy, attitude, and side effects of booster dose. P-value was significant at ≤ 0.05 .

RESULTS

In this study, out of 511 participants, 232 (45%) were of age between 31-35 years, 264 (53%) were females, 323 (63%) were married, and 408 (80%) had master's degrees as shown in Table 1.

Table 2 represents the hesitancy towards COVID-19 Vaccines and their association with the age and gender of participants. It shows that the majority were not hesitant towards vaccination with a total of 404 (79%) had been offered vaccination, and 383 (75%) had taken both the first and second dose of the

COVID-19 Vaccine, a total of 341 (67%) showing willingness to take vaccine every year and 301 (59%) agreed for the requirement of a booster dose. The results depict that the female physical therapists had undergone vaccination more than the male therapists ($p = 0.002$) and have a belief that vaccines are efficacious ($p=0.001$) and safe ($p=0.006$). And male therapists showed a willingness to take vaccination doses every year if recommended ($p=0.05$). However, no association of attributes of hesitancy was observed with the age of therapists ($p>0.05$).

Table 1. Socio-demographic details of participants

Variables	Categories	Frequency	Percentage
Age	25-30	117	22.9%
	31-35	232	45.4%
	36-40	162	31.7%
Gender	Male	247	48.3%
	Female	264	52.7%
Marital Status	Single	188	36.8%
	Married	323	63.2%
Education Level	Graduation	103	20.2%
	Masters	408	79.8%

Table 2. Hesitancy of participants towards covid-19 vaccine booster dose

Attributes of hesitancy	Response	Total	Age n (%)			p-value	Gender n (%)		p-value
			25-30	31-35	36-40		Male	Female	
Administration of the COVID-19 vaccines?	Yes	404 (79)	86 (17)	188 (37)	130 (25)	0.24	181 (35)	223 (44)	0.00
	No	107 (21)	31 (6)	44 (9)	32 (6)		66 (13)	41 (8)	
Taken first and second doses	Yes	383 (75)	80 (16)	173 (34)	130 (25)	0.07	177 (35)	206 (40)	0.09
	No	128 (25)	37 (7)	59 (12)	32 (6)		70 (14)	58 (11)	
The vaccine is effective against the new strain?	Yes	262 (51)	62 (12)	121 (24)	79 (16)	0.73	131 (26)	131 (26)	0.44
	No	249 (49)	55 (11)	111 (22)	83 (16)		116 (23)	133 (26)	
Require a booster dose	Yes	301 (59)	79 (16)	129 (25)	93 (18)	0.09	147 (29)	154 (30)	0.79
	No	210 (41)	38 (7)	103 (20)	69 (14)		100 (20)	110 (22)	
Willing to take a vaccine yearly	Yes	341 (67)	86 (17)	146 (29)	109 (21)	0.14	175 (34)	166 (33)	0.05
	No	170 (33)	31 (6)	86 (17)	53 (10)		72 (14)	98 (19)	
Do you get COVID?	Yes	169 (33)	42 (8)	76 (15)	51 (10)	0.73	89 (17)	80 (16)	0.17
	No	342 (67)	75 (15)	156 (31)	111 (22)		158 (31)	184 (36)	
Direct COVID patient contact	Yes	196 (38)	44 (19)	95 (19)	57 (11)	0.50	106 (21)	90 (18)	0.04
	No	315 (62)	73 (14)	137 (27)	105 (21)		141 (28)	174 (34)	
Vaccines are efficacious	Yes	407 (80)	86 (17)	187 (37)	134 (26)	0.15	181 (35)	226 (44)	0.00
	No	104 (20)	31 (6)	45 (9)	28 (6)		66 (13)	38 (7)	
	No	128 (25)	36 (7)	58 (11)	34 (7)		68 (13)	60 (12)	

The response of physical therapists showing attitude toward the COVID-19 vaccine booster dose is depicted in Table 3. The majority of participants i.e., around 416 (81%) acknowledge that the vaccines are safe which represents their positive attitude towards vaccine booster dose. The results of the chi-square analysis showed that female therapists trusted more on the medical doctors recommending vaccination as compared to male therapists ($p=$

0.00). Moreover, senior physical therapists had more belief in doctors' endorsement for vaccination than the juniors ($p=0.03$).

The side effects of COVID-19 vaccine booster dose are given in Table 4. While malaise and fatigue were the most commonly reported side effects of booster dose. However, no association of side effects of booster dose was observed with the age and gender of participants

Table 3. Attitude towards COVID-19 vaccine booster dose

Attributes of hesitancy	Response	Total	Age n (%)			p-value	Gender n (%)		p-value
			25-30	31-35	36-40		Male	Female	
Vaccine is safe	Yes	416 (81)	92 (18)	191 (37)	133 (26)	0.68	189 (37)	227 (44)	0.00
	No	95 (19)	25 (5)	41 (8)	29 (6)		58 (11)	37 (7)	
Trust in doctors recommending vaccines	Yes	383 (75)	78 (15)	174 (34)	131 (26)	0.03	169 (33)	214 (42)	0.00
	No	128 (25)	39 (8)	58 (11)	31 (6)		78 (15)	50 (10)	
Trust in government information about vaccines	Yes	369 (72)	80 (16)	171 (34)	118 (23)	0.56	170 (33)	199 (39)	0.09
	No	142 (28)	37 (7)	61 (12)	44 (9)		77 (15)	65 (13)	
Trust in vaccine manufacturing companies	Yes	383 (75)	81 (16)	174 (34)	128 (25)	0.18	179 (35)	204 (40)	0.21
	No	128 (25)	36 (7)	58 (11)	34 (7)		68 (13)	60 (12)	

Table 4: Side effects of COVID-19 booster dose and its association with age and gender of physical therapists

Side effects	Response	Total	Age n (%)			p-value	Gender n (%)		p-value
			25-30N (%)	31-35N (%)	36-40N (%)		MaleN (%)	FemaleN (%)	
Fever	Yes	120 (24)	25 (5)	55 (11)	40 (8)	0.81	62 (12)	58 (11)	0.40
	No	391 (76)	92 (18)	177(35)	122 (24)		185 (36)	206 (40)	
Diarrhea	Yes	112 (22)	22 (4)	57 (11)	33 (7)	0.41	55 (11)	57 (11)	0.85
	No	399 (78)	95 (19)	175 (34)	129 (25)		192 (38)	207 (41)	
Constipation	Yes	109 (21)	22 (4)	57 (11)	30 (6)	0.26	56 (11)	53 (10)	0.47
	No	402 (79)	95 (19)	175 (34)	132 (26)		191 (37)	211 (41)	
Fatigue & Malaise	Yes	332 (65)	85 (17)	140 (27)	107 (21)	0.07	168 (33)	164 (32)	0.16
	No	179 (35)	32 (6)	92 (18)	55 (11)		79 (16)	100 (20)	
Nausea & Vomiting	Yes	121 (24)	21 (4)	66 (13)	34 (7)	0.05	58 (11)	63 (12)	0.92
	No	390 (76)	96 (19)	166 (33)	128 (25)		189 (37)	201 (39)	
Difficult Breathing	Yes	126 (25)	21 (4)	64 (13)	41 (8)	0.14	63 (12)	63 (12)	0.67
	No	385 (75)	96 (19)	168 (33)	121 (24)		184 (36)	201 (39)	

DISCUSSION

This study aims to find out the hesitancy, attitude, and side effects of COVID-19 booster doses among physical therapists working in the public and private sectors of Pakistan. After the administration of the vaccine, to maintain immunity and to prevent from condition, a booster dose is a must. Despite much awareness of the disease and its complications, through different campaigns, there lies vari-

ation in attitude and acceptability towards booster doses. Physical therapist has direct contact with the patients because of mode of treatment is somehow manual, therefore, it is required to have a cover against COVID-19 pathogen via booster dose.

The results of this study showed that 79% have undergone vaccination and 59% of the participants

agreed on the necessity of a booster dose. This substantial vaccination rate represents the concerted efforts of the government to make the vaccine accessible for first-line practitioners and immune-compromised individuals through mass vaccination¹⁶, the recommendation of physicians ($p < 0.05$), and the belief of therapists in its efficacy as about 80% found the booster dose efficacious. The noticeable side effects of the booster dose were fatigue and malaise which were experienced by 65% of therapists while others did not observe any major side effects. Similarly, a study conducted by Malik *et al.* (2021) on the acceptance of the COVID-19 vaccine among healthcare workers in Pakistan also reported a higher acceptance rate specifically among young females¹³.

Likewise, a study conducted by Pal *et al.* (2021) on COVID-19 vaccine hesitancy and attitude towards booster doses among US health workers showed a major agreement towards taking booster doses and it increases with age, and education level whereas, a total of 7.9% of respondents were hesitant to take the vaccine showed mistrust on regulatory authority, government and pharmaceutical companies¹². Similarly, a study on hesitancy of booster doses in Singapore showed that about 78% of healthcare workers who had taken booster doses showed higher acceptability to get proper vaccination among healthcare workers¹⁷. Another study conducted by Vellappally *et al.* (2022) on booster dose perception among healthcare workers in India and Saudi Arabia showed little hesitancy and a good perception of booster dose to maintain immunity against COVID-19 infection¹⁸.

In parallel to our findings, a study was conducted by Hammad *et al.* (2021) to determine of side effects of booster dose in Jordan. In a sample of 2213 people, the majority showed post-vaccination non-life-threatening side effects. Only 10% of participants experienced severe side effects, whereas 39% and 21% of participants experienced moderate and mild side effects respectively. The prevalent effects include fatigue, chills, disorientation, fever, headache, joint pain, and myalgia. They also observed fatigue and malaise as the most common side effects after the booster dose¹⁹. A study

conducted in Saudi Arabia similarly found that side effects following a booster dose varied in intensity from mild to moderate, with the most common symptoms being fatigue, headache, muscle pain, and localized redness at the injection site²⁰.

Despite careful consideration, this study has a few limitations such as the small sample size that can affect the generalizability of the findings. Moreover, it is conducted on young to middle-aged physiotherapists only. The attitude, hesitancy, and side effects of COVID-19 Vaccine booster dose should also be addressed among senior healthcare professionals. It is recommended that future researchers conduct long-term follow-up studies to monitor potential delayed or rare side effects that may not have developed in short-term trials.

CONCLUSION

The majority of the physical therapists had undergone vaccination and agreed on the need for a booster dose to maintain immunity. Female therapists are more convinced about vaccination and booster doses than male therapists. Among the variety of side effects, fatigue and malaise were the most commonly reported side effects after booster dose.

DECLARATION

Conflicts of interest: The authors declared no conflict of interest.

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