

Immunization Coverage of Covid-19 among Attendants Accompanying Patients in Gulab Devi Hospital-Pakistan

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ABSTRACT

Background: Covid-19 is one of the major pandemics and health crisis in global history along with SARS-CoV & MERS-CoV.

Aim: To find the frequency and distribution of coverage of Covid-19 vaccination among attendants accompanying the patients in Gulab Devi Hospital.

Methodology: This cross sectional study used convenience sampling technique. The study population comprised of 386 respondents estimated via S size software. Our data collection team visited various wards & OPDs of hospitals & conducted interviews for the purpose. A structured questionnaire was filled for obtaining the data. Frequency and percentages were calculated for categorical variables while mean and standard deviation was calculated for numeric variable by using SPSS v-23.

Results: The vaccination coverage of Covid-19 Immunization was as follows: 69% of our respondents were partially Vaccinated (1 or 2 doses), 14% fully vaccinated (3 or more doses) 17% were non vaccinated.

Conclusions: Significant proportion of the participants were partially vaccinated or not vaccinated against COVID-19, indicating the need for further efforts to improve vaccination coverage thus findings emphasized the need for targeted educational campaigns.

Keywords: COVID-19, Vaccination Coverage, Attendants, Effectiveness and Response Rate.

INTRODUCTION

Covid-19 is one of the major pandemics and health crisis in global history along with SARS-CoV & MERS-CoV¹. In December 2019, a novel coronavirus, SARS-CoV-2, was first reported in Wuhan, China, and rapidly spread throughout the world, resulting in a pandemic within 03 months^{2,3}. Since then efforts are underway for its containment, prevention and eradication in full swing. In December 2020 US FDA approved the usage of Pfizer vaccine on emergency basis⁴. Looking in Pakistan, Health Ministry reported the first case of Covid on 26 February 2020³. With the formation of NCOC (National Command and Operation Centre) a strategy was formulated to cope with the situation⁵.

Pakistan started the vaccination process in January 2021 of which healthcare workers and elderly people were at the priority. The process was carried out in a phase wise manner⁶. According to the latest available stats Pakistan has administered 244,354,132 doses of covid vaccines⁶. According to the Gavi Vaccine alliance report⁷, 80% of eligible population (12 years and above) has been fully vaccinated while another database⁸ states only 44.61% of the total population has been fully vaccinated as of March 2022. Following vaccines⁹ were and are still approved for use i.e., Sinopharm, Sinovac and Pfizer

The major vaccine contributors for Pakistan are the United States, China and the COVAX facility and the World Health Organization¹⁰. One researcher emphasized that the long-term success against COVID-19 pandemic hinges on achieving herd immunity¹¹. WHO facts sheet published in July 2022 reveals global immunization coverage decreased to 81% from 86% in 2019 & about 25 million children under the age of 1 year didn't receive basic vaccines, the highest since 2009¹². To achieve this target, it is vital to ensure widespread vaccination. Nevertheless, the degree and length of protection that COVID-19 vaccines will offer were not entirely certain as pointed out previously¹²⁻¹⁴.

In Pakistan, booster dose is also available for those 18 years of age and above. Undoubtedly vaccines are the most effective and vital tool against prevention of diseases and awareness should be promoted among the masses¹⁵. There has been significant development in Covid-19 vaccine production and enhancement in efficacy.

The aim of this study is to find the frequency and distribution of immunization coverage of Covid-19 among the attendants accompanying the patients visiting Gulab Devi Hospital, Lahore-Pakistan. The study also highlights the importance of targeting specific groups such as those who rely on social media for vaccination information, in order to promote vaccination uptake.

METHODOLOGY

This cross sectional study used convenience sampling technique. The study population comprised of 386 respondents estimated via S size software. Our data collection team visited various wards & OPDs of hospitals & conducted interviews for the purpose. A structured questionnaire was filled for obtaining the data.

In our study the participant was said to be "Fully Vaccinated" if he has received three or more doses of Covid-19 vaccine. Similarly the participant was labelled as "Partially Vaccinated" if he has received one or two doses of the Covid-19 vaccine. Participant was said to be "Non Vaccinated" if he hasn't received any of the doses of Covid-19 vaccine.

Inclusion criteria was to interview attendants 12 years old and above. Exclusion criteria was set as lack of valid information regarding vaccination. In order to collect the data our team visited different wards and OPDs of hospital and conducted interviews of attendants accompanying the patients. Immunization status was acquired through vaccination cards and online vaccination information system.

Statistical analysis: Frequency and percentages were calculated for categorical variables such as gender, marital status, immunization coverage etc. Numeric variable i.e., age was presented as mean±SD by using SPSS v-23. Factors associated with vaccination coverage are determined using Chi-square test significant at p< 0.05.

RESULTS

Age as mean±SD was 32.5±12.5years. Almost 251(65%) were males and 135(35%) were females. The majority of the participants, 216(56%), were married. In terms of education, 7% had only primary education, 12% had middle education, 27% had high school education, while 40% had a bachelor's degree or higher education, and 14% were uneducated. A vast majority of the participants, 79%, were living in urban areas. Regarding employment status, 26% were unemployed, 53% were employed,

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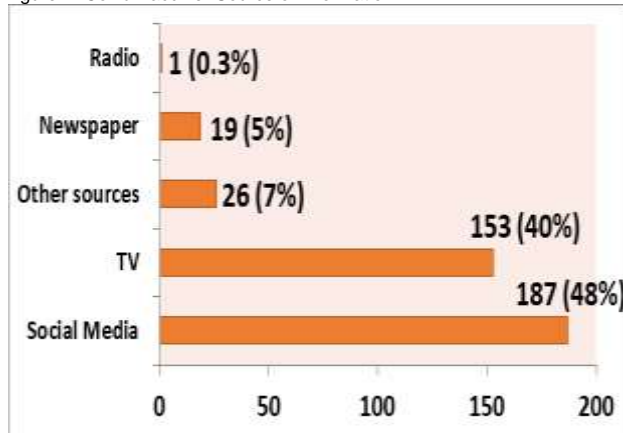
19% were students, while 2% were retired citizens as shown in table 1.

Table 1: Basic Data of Participants

Variable	Categories	Frequency	%age
Gender	Male	251	65
	Female	135	35
Marital Status	Married	216	56
	Single	170	44
Educational Status	Primary	25	7
	Middle	48	12
	High school	104	27
	Bachelors & above	157	40
	Uneducated	52	14
Residence	Urban	305	79
	Rural	81	21
Employment Status	Unemployed	99	26
	Employed-Full Time	119	31
	Employed-Part Time	20	5
	Daily Wager	11	3
	Self Employed	56	14
	Student	75	19
	Retired	6	2

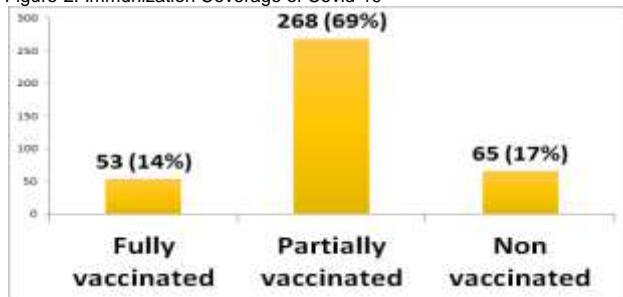
The study found that a greater proportion of participants, 48%, relied on social media for information regarding Covid-19 vaccination, while 40% relied on television, 7% used other sources, 5% read newspapers, and only one participant relied on radio as shown in figure-1.

Figure-1: Covid Vaccine- Source of Information



Regarding the coverage of vaccination among the attendants, the study found that 268(69%) were partially vaccinated, 65(17%) were non-vaccinated, and 53(14%) were fully vaccinated as shown in figure-2. These results suggest the need for targeted educational interventions and improved accessibility to vaccination for those who remain unvaccinated or partially vaccinated.

Figure-2: Immunization Coverage of Covid-19



Gender, educational status, employment, and information source regarding vaccination were found to be significantly associated with the immunization status of participants, while residence and marital status were not significantly associated with the vaccination status of participants as shown in table-2.

Table-2: Factors Associated with Covid-19 Immunization

Categories	Vaccinated	Unvaccinated	P-value
Gender			
Males	221(69)	30 (46)	0.000*
Females	100 (31)	35 (54)	
Residence			
Urban	257 (80)	48 (74)	0.262
Rural	64 (20)	17 (26)	
Marital status			
Married	148 (46)	22 (34)	0.636
Single	173 (54)	43 (66)	
Education			
Primary	19(6)	6(9)	0.01*
Middle	32(10)	16(25)	
High school	84(26)	20(31)	
University Level	151(47)	6(9)	

*Statistically significant

DISCUSSION

This study finds that 69% of the individuals were partially vaccinated against Covid-19. 14% individuals were fully vaccinated. So a total of 83% individuals were those who got vaccinated. It is to be kept in mind that in our study "partially Vaccinated" individuals include those who completed the standard primary series of Vaccination i.e., 2 doses of vaccine and those who have just received one dose only. It is also essential to note that 74% of the respondents are those who have completed the primary Vaccination series while 9% received only one dose.

According to one study¹⁶, the global inequity in Covid-19 vaccination coverage among healthcare workers showed 23.4% of the general population of these countries were fully vaccinated and 19.5% were Partially vaccinated.

A similar research based on same operational definitions as ours, in England found out that 74.5% of the individuals aged 18-64 years, were fully vaccinated i.e. received three doses while 7.2% were non-vaccinated¹⁷. Also found that majority of the individuals had level 4+ education i.e Higher Education & above. In another cross sectional study, it was reported 60% individuals to be vaccinated¹⁸ while 40% as non vaccinated with a sample size of 1325. Their study also indicated that higher level of education, employment status & source of Vaccination and other factors were significantly associated with the Immunization status of the respondents similar to ours. Their inclusion criteria being individuals 40 years old and above is different from our study.

A population based survey conducted showed 58.04% participants were Vaccinated while 41.96% non-vaccinated.¹⁹ Also that age, education, infected family members & occupation were significantly associated with Immunization status. In an online questionnaire based cross sectional study, showed that 85.3% of the members were vaccinated either received one or two doses while 14.7% non vaccinated²⁰. Another cross sectional study, reported that 63.6% of the participants received 2 doses or more which is similar to our percentage of "partially vaccinated" subjects while 80.4% only had taken one dose. 16 years old and above individuals were recruited for the study²¹.

It was evident that our Vaccination coverage as compared to others is different owing to the fact that criteria for fully vaccinated person is receiving 3 or more doses hence only 14% are fully immunized. However when we look at those who received at-least 2 doses, the study results were at par with those of above mentioned.

Our study indicated more females are vaccinated than the males & it may be due the fact more women accompany the patients for patient assistance. Educational status, employment &

source of information played a significant role in raising the vaccination levels as knowledge and accurate information leads to higher rate of coverage. We again make the emphasis that the difference in the coverage of fully vaccinated individuals in our study and other studies is essentially of operational definition.

Limitations of study: Lack of genetic workup followed by limited financial and human resources added to our limitations.

CONCLUSION

It was concluded that significant proportion of participants in our study remain unvaccinated or partially vaccinated. Given that the pandemic continues to pose a threat to public health, these results highlight the need for targeted interventions to improve vaccination rates. It is important to note that gender, educational status, employment, and information source regarding vaccination were found to be significantly associated with the immunization status of participants ($p < 0.05$). Therefore, interventions should be tailored to specific demographic groups to effectively address barriers to vaccination. Improved accessibility and outreach efforts may also be necessary to ensure that individuals have access to the resources they need to get vaccinated. Overall, our study underscores the importance of continued efforts to promote vaccination and combat the Covid-19 pandemic.

Authorship and contribution Declaration: Each author of this article fulfilled following Criteria of Authorship:

MMA, MZ&MUA: Overall supervision and Write up and literature review.

MAJ, MW&FJ: Statistics application, analysis literature review, help in write up.

MC&ZN: Literature review help in write-up.

All authors agree to be responsible for all aspects of their research work.

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REFERENCE

- Piret J, Boivin G. Pandemics Throughout History. *Front Microbiol.* 2021 Jan 15;11:631736. doi: 10.3389/fmicb.2020.631736. Erratum in: *Front Microbiol.* 2022 Sep 27;13:988058. PMID: 33584597; PMCID: PMC7874133.
- Yang X, Yu Y, Xu J, Shu H, Xia J, Liu H, Wu Y, Zhang L, Yu Z, Fang M, et al. Clinical course and outcomes of critically ill patients with SARS-CoV-2 pneumonia in Wuhan, China: a single-centered, retrospective, observational study. *Lancet Respir Med.* 2020. February 24. doi: 10.1016/S2213-2600(20)30079-5.
- Abid.K., Bari.Y.A., Younas.M., Javaid.S.T. & Imran.A.(2020,May19).Progress of COVID-19 Epidemic in Pakistan.Asia Pac J Public Health. 2020 May; 32(4): 154–156.Published online 2020 May 19. Doi: 10.1177/1010539520927259
- Fortner.A & Schumacher.D (2021, March 05) First COVID-19 Vaccines Receiving the US FDA and EMA Emergency Use Authorization.Discoveries (Craiova). 2021 Jan-Mar; 9(1): e122.Published online 2021 Mar 5. Doi: 10.15190/d.2021.1
- Siddiqui.A., Ahmed.A., Tanveer.M., Saqlain.M., Kow.C.S. & Hasan.S.S. (2021,July31).An overview of procurement, pricing, and uptake of

- COVID-19 vaccines in Pakistan.*Vaccine.* 2021 Aug 31; 39(37): 5251–5253.Published online 2021 Jul 31. Doi: 10.1016/j.vaccine.2021.07.072
- WHO.(n.d.).WHO Coronavirus (COVID-19) Dashboard. Accessed May 9,2022.Retrieved from <https://covid19.who.int/region/emro/country/pk>
- Basharat,R.(2022, March 21).Pakistan has vaccinated more than 80% of the adult population against COVID-19.Gavi,The Vaccine Alliance. <https://www.gavi.org/vaccineswork/pakistan-has-vaccinated-more-than-80-population-against-covid-19>
- Ritchie H., Mathieu E., Rodés-Guirao L., Appel C., Giattino C., Ortiz-Ospina E., et al. *Our world in data.* 2020. Coronavirus pandemic (COVID-19)<https://ourworldindata.org/covid-vaccinations>
- Siddique.S and Ahmed.S(2021) COVID-19 Vaccines in Pakistan: Efficacy, Adverse Effects and Availability.JOURNAL OF ISLAMABAD MEDICAL & DENTAL COLLEGE.Vol 10 No 2 (2021): April – June 2021. Doi:<https://doi.org/10.35787/jimdc.v10i2.723>
- Yoo.K.J., Mehta.A., Mak.J., Bishai.D., Chansa.C, & Patenaude.B.(2022,Mar 25).COVAX and equitable access to COVID-19 vaccines.Bull World Health Organ. 2022 May 1; 100(5): 315–328. Doi: 10.2471/BLT.21.287516
- Huang C, Yang L, Pan J, Xu X, Peng R. Correlation between vaccine coverage and the COVID- 19 pandemic throughout the world: based on real-world data. *J Med Virol.* 2022;94:2181- 2187. 10.1002/jmv.27609
- WHO.(2022,July 14).Immunization coverage.Retrieved from <https://www.who.int/en/news-room/fact-sheets/detail/immunization-coverage>
- HE Randolph, LB Barreiro.Herd immunity: Understanding COVID-19 Immunity, 52 (5) (2020), pp. 737-741 May 19
- DM Altmann, DC Douek, RJ Boyton. What policy makers need to know about COVID-19 protective immunity. *The Lancet*, 395 (10236) (2020), pp. 1527-1529 May 16
- Bangura, J.B., Xiao, S., Qiu, D. Et al.(2020,July14).Barriers to childhood immunization in sub-Saharan Africa: A systematic review. *BMC Public Health* 20, 1108 (2020). <https://doi.org/10.1186/s12889-020-09169-4>
- Nabaggala, M.S., Nair, T.S., Gacic-Dobo, M. Et al. The global inequity in COVID-19 vaccination coverage among health and care workers. *Int J Equity Health* 21 (Suppl 3), 147 (2022). <https://doi.org/10.1186/s12939-022-01750-0>
- Nafilyan V, Dolby T, Finning K, et al.Differences in COVID-19 vaccination coverage by occupation in England: a national linked data study.*Occupational and Environmental Medicine* 2022;**79**:758-766
- Zakar R, Momina Au, Shahzad S, Hayee M, Shahzad R, Zakar MZ. COVID-19 Vaccination Hesitancy or Acceptance and Its Associated Factors: Findings from Post-Vaccination Cross-Sectional Survey from Punjab Pakistan. *International Journal of Environmental Research and Public Health.* 2022; 19(3):1305. <https://doi.org/10.3390/ijerph19031305>
- Soomar SM, Soomar SM, Khan M, et al.COVID-19 vaccine acceptance and hesitancy among the general population of Pakistan: a population-based survey.*BMJ Open* 2022;**12**:e064096. doi: 10.1136/bmjopen-2022-064096
- Marinos G, Lamprinos D, Georgakopoulos P, Patoulis G, Vogiatzi G, Damaskos C, Papaioannou A, Sofroni A, Pouletidis T, Papagiannis D, Symvoulakis EK, Konstantopoulos K, Rachiotis G. Reported COVID-19 Vaccination Coverage and Associated Factors among Members of Athens Medical Association: Results from a Cross-Sectional Study. *Vaccines.* 2021; 9(10):1134. <https://doi.org/10.3390/vaccines9101134>
- Richard L, Liu M, Jenkinson JIR, Nisenbaum R, Brown M, Pedersen C, Hwang SW. COVID-19 Vaccine Coverage and Sociodemographic, Behavioural and Housing Factors Associated with Vaccination among People Experiencing Homelessness in Toronto, Canada: A Cross-Sectional Study. *Vaccines.* 2022; 10(8):1245. <https://doi.org/10.3390/vaccines10081245>.

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