International Journal of Community Medicine and Public Health
Kumar A et al. Int J Community Med Public Health. 2022 Feb;9(2):679-683
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: https://dx.doi.org/10.18203/2394-6040.ijcmph20220044

Original Research Article

The study about mindset of COVID-19 vaccination among health care employees and general population at tertiary care hospital

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Received: 27 September 2021
Revised: 30 December 2021
Accepted: 04 January 2022

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ABSTRACT

Background: Definitive treatment and vaccination are basic necessity to bring down the burden of COVID-19 disease. Due to rapid development of vaccine against COVID-19, associated anxiety and mistrust raises hesitancy for vaccination. We aim to study about the mindset of COVID-19 vaccination among health care employees (HCE) and general population at tertiary care hospital in north east India.
Methods: This was a cross sectional and observational study; questionnaires were distributed among 200 HCE and 400 general populations visiting at different OPD regarding their mindset for vaccination. Questionnaires consisted of parameter such as history of previous COVID-19 infection or hospitalization, co-morbidities, job status during pandemic and educational qualification and contained specific questions for causes of vaccine hesitancy.
Results: In the survey participants from general population were more hesitant for vaccination as compared to HCE ($p<0.001$). Most common cause for hesitancy among HCE was pregnancy/lactation followed by concern regarding adverse effects. Doubted efficiency and adverse effects were leading concerns (67%) for vaccine hesitancy among general population. Past history of infection or hospitalization due to COVID-19 did not affect the attitude for getting vaccinated ($p>0.05$). Among general population, 25% had their job affected during pandemic of which 78% were in favour of vaccination.
Conclusions: Increased awareness and high risk of getting infected with COVID-19 makes HCE less hesitant for vaccination. It is important to increase awareness among the general population to bring down the concerns regarding adverse effect and potency of vaccine to reduce the hesitancy for vaccination.

Keywords: COVID-19 vaccination, Vaccine hesitancy, HCE, General population

INTRODUCTION

The COVID-19 pandemic is imposing huge burdens of morbidity and mortality while severely disrupting socioeconomic status worldwide.[1] WHO identified it as one of the top ten global health threats in 2019. It seems that lockdowns, self-isolation, mask-wearing, social distancing is not a long-term measure against the spread of the novel corona virus.[2] The research and development in the field of COVID-19 vaccine by global health organizations seem to be a game-changer.[3] studies have suggested five determinants of vaccine hesitancy confidence, complacency, constraints or convenience, risk collection and collective responsibility.[4]

The world health organization strategic advisory group of experts on immunization defined vaccine hesitancy as a 'delay in acceptance or refusal of vaccination despite the availability of vaccination services'.[5] The hesitancy may be due to variable reasons, intensity and also is dependent on the vaccine involved.[6,7] Successful immunization against this disease will require global educational policies regarding vaccine safety, potency and efficacy.[3]

In a recent study by Dror et al healthcare staff involved in providing COVID-19 or individuals at risk had a higher acceptance rate for the vaccine when compared to those working in the non-COVID-19 department.[3] Developing a safe and effective vaccine is in itself challenging and vaccine hesitancy creates another problem for the health care facilities of government, policymakers, and international organizations. Vaccine hesitancy and anti-vaccine messaging have become one of the serious concerns in outbreaks of diseases.[8]

This is the first study to the best of our knowledge in evaluating mindset regarding COVID-19 vaccination among HCE and the general population at a tertiary care hospital in eastern India.

METHODS

The study adhered to the tenets of Helsinki and approved by the institutional research ethics committee. Informed consent was taken. Confidentiality of information was assured. This was a cross-sectional, observational study done from March 2021 to April 2021. Purposive sampling was done. The study consists of questionnaires that were distributed among 200 HCE of different departments and 400 general populations visiting at different Outpatient Department (OPD) of tertiary care hospital. The exclusion criteria being age below 18 years of age, persons with psychiatry illness, any acute illness and having active symptoms of COVID-19 infection. The questionnaire for HCE included demographic data, job profile was asked for HCE as a doctor, nurse, paramedical staff, and support staff. For the general population parallel questions were included: occupation status during the COVID-19 crisis (working, as usual, temporary unemployment or job loss) and level of education (undergraduate or postgraduate). The common questions to both groups included: associated co-morbidities, history of suspected/confirmed COVID-19 infection with or without hospitalization, need of oxygen supply during that period, and any post-COVID complications. Common questions consisted of their intentions to accept future COVID-19 vaccination if available. The questionnaire was in Hindi and English format as per respondent convenience. Participants declining the COVID-19 vaccine were presented with specific questions regarding reason for vaccine hesitancy.

Data analysis was performed on SPSS 18.0 for windows (SPSS Inc, Chicago, SPSS Inc). Values were expressed as mean ± SD and %. Chi square test used to compare 2 categorical variables. P<0.05 considered as significant.

RESULTS

The mean age of participants in HCE and general population was 30.98±8.16 and 44.42±15.80 years respectively. Gender was equally distributed between both the groups. Approximately 4.5% of the general population was illiterate while all the participants were literate. All the participants were from an urban or semi urban background in both these groups.

The participants in HCE were significantly inclined towards COVID-19 vaccination compared to general population (p<0.001). 12% of the HCE participants were hesitant to get vaccinated as compared to 28% of the general population (Figure 1 and 2). In general population 31% (72/230) of the male were hesitant to get vaccinated against 24% (40/170) of the females whereas in HCE 7% (7/104) of the males were hesitant to get vaccinated against 17% (16/96) of the females but the association was not significant (p>0.05). Age was not significantly associated with vaccination hesitancy in either group (p>0.05). The most common reason for vaccine hesitancy was pregnancy or lactation (33%) followed by fear of side effect (27%) in HCE (Figure 3). Amongst HCE, doctors stating vaccine hesitancy were females citing pregnancy or lactation as the sole reason. Among hesitant general population 68% cited pregnancy or lactation and adverse effect as reason for not getting vaccinated (Figure 4).

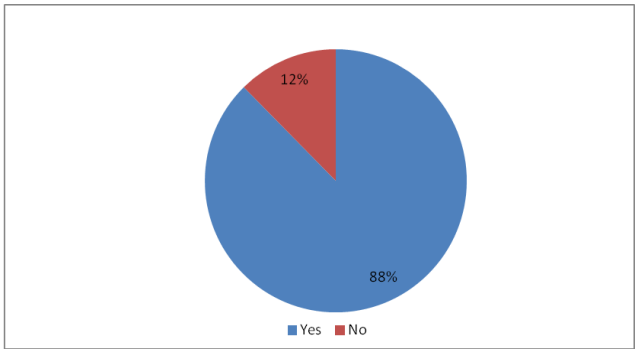

Figure 1: Willingness for vaccination among HCE.

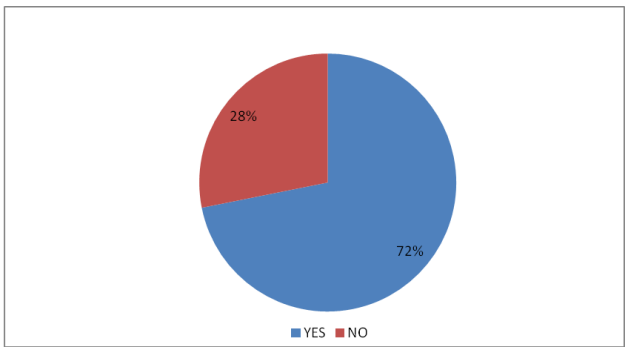

Figure 2: Willingness for vaccination in general population.

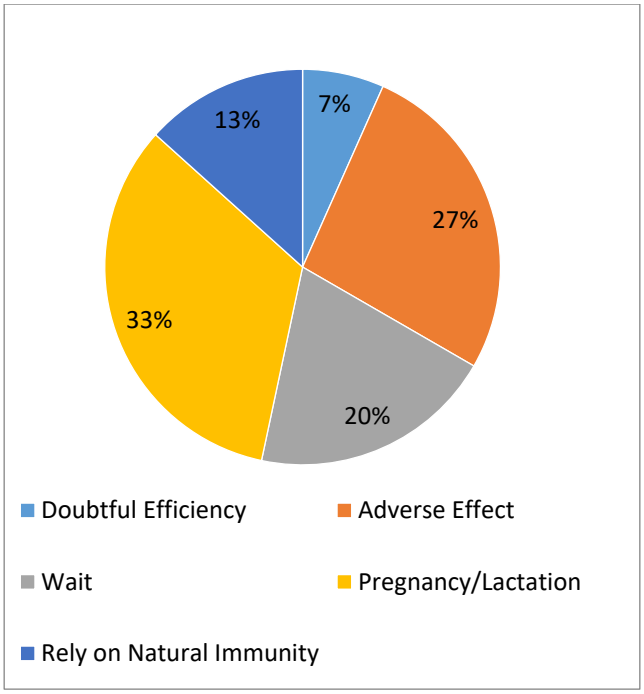

Figure 3: Reason for vaccine hesitancy amongst healthcare employees.

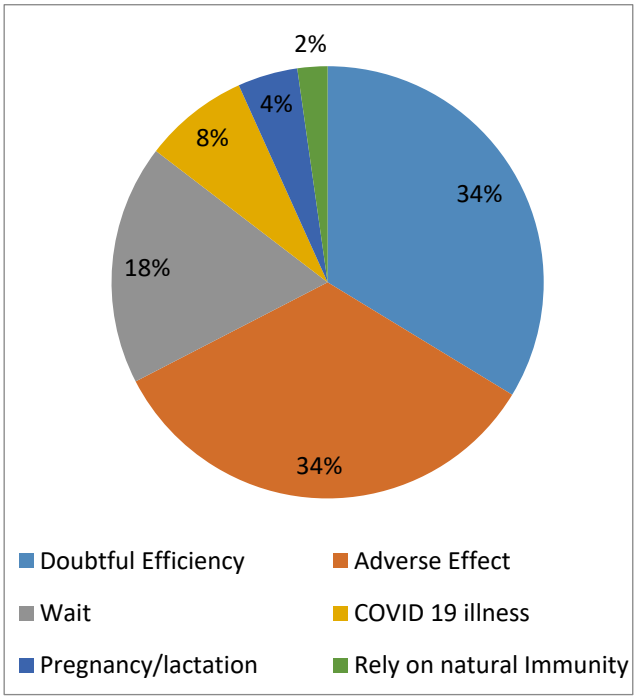

Figure 4: Reasons for vaccine hesitancy in general population.

In general population group, 155 participants had one or more co-morbidities and in this subgroup 75% were in favour of vaccination but the difference wasn't significant (p>0.05). 72 people had past history of COVID-19 infection in the first wave and 14 were hospitalized due to the same. Vaccine acceptance rate was higher among these two subgroups, 64% and 88% respectively. There was no significant association when vaccination intention was compared between participants with and without history of COVID-19 (p>0.05). Job of hundred participants was affected during COVID pandemic out of which 78% were likely to get vaccinated. The job status did not significantly affect vaccine hesitancy (p=0.26). Literacy did not affect the willingness for COVID-19 vaccination.

DISCUSSION

The study was taken up to evaluate mindset regarding COVID-19 vaccination in HCE and general population at a tertiary care hospital in North East India. With the introduction of COVID 19 in India, guidelines for HCE and general population were laid down. During our study period all HCE irrespective of age were allowed for vaccination whereas for general population only those with age more than 45 years were allowed for inoculation.

According to our survey, the vaccine acceptance was significantly higher (88%) among HCE compared to general population (72.5%). The difference can be attributed to the fact that HCE consider themselves at higher risk of contracting COVID-19 while working in a healthcare facility. Literacy rate and awareness is higher among HCE the reinforces the vaccination drive in the participants. A recent study in UK reported willingness for vaccination in 76.2% and 73.1% in key and non-key workers.[9] In a study on French health care worker 76.9% expressed willingness for vaccination.[10] In an Asia Pacific study on healthcare workers 96.2% of the participants expressed willingness to receive the COVID-19 vaccine.[11] In the same survey 95.3% of the Indians were willing to get vaccinated which is higher as compared to our study. A recent review revealed that out of 76,471 healthcare workers 22.51% were hesitant to get vaccinated and was comparable to vaccine acceptance of 88% among HCE in our study.[12]

The main reasons for COVID-19 vaccine hesitancy were concerns about safety, efficacy, and adverse effects of the vaccines.[12] In the study by Roy et al, approximately 7.85% of the participants stated pregnancy as reason for unwillingness for vaccination.[13] In our study pregnancy or lactation (33%) was the leading cause of vaccine hesitancy and among doctors this was the sole limiting factor. Till our data collection there was no clear guideline for pregnant and nourishing mother for inoculation which may have led to increased vaccine hesitancy in HCE. Our study had a higher number of female participants in reproductive age group stating pregnancy as leading cause of vaccine hesitancy. None of our participants in HCE group had any co-morbidities and COVID 19 infection which have led to bias in our study.

The survey demonstrates that 72.5% (110/400) participants among general population had acceptance for vaccine inoculation. In a multinational study vaccine

acceptance rate was reported to be 74.5% in India.[1] Overall 4.85-88.62% of general population from different countries were ready for COVID 19 vaccination.[1] 73.9% of participants from Denmark, France, Germany, Italy, Portugal, Netherlands, and UK were willing to get vaccinated against COVID-19.[14] Our study also reports a similar data regarding vaccine acceptance.

In our study two major reasons, doubted efficacy and adverse effects contributed to about 68% for the hesitant participants. Various studies have reported vaccine-specific concerns, anti-vaccine attitudes or beliefs, and a lack of trust as causes of vaccine hesitancy.[15] 55% of the participants were concerned about the potential side effect of the vaccine.[14] The common concerns cited are COVID-19 vaccine being experimental, no long term studies on side effects, vaccine being unsafe for specific groups like pregnancy and preference for natural immunity.[14,16] The survey also highlighted the higher acceptance for vaccine in participants with co-morbidity as they may perceive themselves at higher risk of contracting the disease. The patients who had earlier suffered from COVID-19 with and without history of hospitalization were more inclined for vaccination acceptance. This can be due to their perception of being more susceptible to the second wave of pandemic, the fear of getting admitted again and sufferings from post-COVID complication. Schwarzinger et al have reported that participants who perceived COVID-19 as very severe if infected were significantly less likely to refuse any COVID-19 vaccine compared with participants who perceived COVID-19 as not severe at all.[17] Also, Bendau et al have reported a significant correlation of vaccine acceptance with COVID-19-related anxiety, fears of infection and health-related consequences.[18] A meta-analysis on people's intentions and behaviour revealed that when heightened risk of a threat is perceived, they become more favourable toward interventions including vaccination, that mitigate the threat.[19]

Studies have also reported lower odds of vaccine hesitancy for unemployed as against employed participants.[20,3] In our study, the participants whose job had been affected were more likely to get vaccinated (although not significant). This is in contrast to other study by Malik et al who have reported that employed study participants are more likely to accept vaccination against their unemployed counterparts.[21]

As it is a cross-sectional study, it has several limitations like it represents the community response at one point in time. The final intention could be different after vaccine availability. The intention to get vaccinated can vary due to relapsing and remitting waves of COVID-19 particularly in those participants with vaccine hesitancy.

CONCLUSION

Doubted efficacy and adverse effects are the major reason for vaccine hesitancy. Concerns regarding specific adverse event and efficacy should be addressed to bring down the fear in general population for vaccination. Also, clear guidelines to mitigate fear in pregnancy and lactating women should be laid down to promote vaccination.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Lazarus JV, Ratzan SC, Palayew A, Gostin LO, Larson HJ, Rabin K et al. A global survey of potential acceptance of a COVID-19 vaccine. Nat Med. 2021;27:225-8.
2. Su Z, Wen J, Abbas J, McDonnell D, Cheshmehzangi A, Li X et al. A race for a better understanding of COVID-19 vaccine non-adopters. Brain Behav Immun Health. 2020;9:100159.
3. Dror AA, Eisenbach N, Taiber S, Morozov NG, Mizrachi M, Zigron A et al. Vaccine hesitancy: the next challenge in the fight against COVID-19. Eur J Epidemiol. 2020;35:775-9.
4. Wiysonge CS, Ndwandwe D, Ryan J, Jaca A, Batouré O, Anya BM et al. Vaccine hesitancy in the era of COVID-19: could lessons from the past help in divining the future? Hum Vaccin Immunother. 2021;8:1-3.
5. MacDonald NE, SAGE Working Group on Vaccine Hesitancy. Vaccine hesitancy: Definition, scope and determinants. Vaccine. 2015;33:4161-4.
6. Karafillakis E, Larson HJ. ADVANCE consortium. The benefit of the doubt or doubts over benefits? A systematic literature review of perceived risks of vaccines in European populations. Vaccine. 2017;35:4840-50.
7. Cobos Muñoz D, Monzón Llamas L, Bosch-Capblanch X. Exposing concerns about vaccination in low- and middle-income countries: a systematic review. Int J Public Health. 2015;60:767-80.
8. Detoc M, Bruel S, Frappe P, Tardy B, Botelho-Nevers E, Gagneux-Brunon A. Intention to participate in a COVID-19 vaccine clinical trial and to get vaccinated against COVID-19 in France during the pandemic. Vaccine 2020;38:7002-6.
9. Butter S, McGlinchey E, Berry E, Armour C. Psychological, social, and situational factors associated with COVID-19 vaccination intentions: A study of UK key workers and non-key workers. Br J Health Psychol. 2021;12530.
10. Gagneux-Brunon A, Detoc M, Bruel S, Tardy B, Rozaire O, Frappe P et al. Intention to get vaccinations against COVID-19 in French healthcare workers during the first pandemic wave: a cross-sectional survey. J Hosp Infect. 2021;108:168-73.
11. Chew NWS, Cheong C, Kong G, Phua K, Ngiam JN, Tan BYQ et al. Asia-Pacific study on healthcare workers' perceptions of, and willingness to receive,

the COVID-19 vaccination. Int J Infect Dis. 2021;106:52-60.
12. Biswas N, Mustapha T, Khubchandani J, Price JH. The Nature and Extent of COVID-19 Vaccination Hesitancy in Healthcare Workers. J Community Health. 2021;1-8.
13. Roy B, Kumar V, Venkatesh A. Health care workers' reluctance to take the Covid-19 vaccine: a consumer-marketing approach to identifying and overcoming hesitancy. NEJM Catalyst Innovations in Care Delivery. 2020;1:6.
14. Neumann-Böhme S, Varghese NE, Sabat I, Barros PP, Brouwer W, Van Exel J et al. Once we have it, will we use it? A European survey on willingness to be vaccinated against COVID-19. Eur J Health Econ. 2020;21:977-82.
15. Fisher KA, Bloomstone SJ, Walder J, Crawford S, Fouayzi H, Mazor KM. Attitudes Toward a Potential SARS-CoV-2 Vaccine: A Survey of U.S. Adults. Ann Intern Med. 2020;173:964-73.
16. Taylor S, Landry CA, Paluszek MM, Groenewoud R, Rachor GS, Asmundson GJG. A Proactive Approach for Managing COVID-19: The Importance of Understanding the Motivational Roots of Vaccination Hesitancy for SARS-CoV2. Front Psychol. 2020;11:575950.
17. Schwarzinger M, Watson V, Arwidson P, Alla F, Luchini S. COVID-19 vaccine hesitancy in a representative working-age population in France: a survey experiment based on vaccine characteristics. Lancet Public Health. 2021;6:e210-21.
18. Bendau A, Plag J, Petzold MB, Ströhle A. COVID-19 vaccine hesitancy and related fears and anxiety. Int immunopharmacol. 2021;97:107724.
19. Sheeran P, Harris PR, Epton T. Does heightening risk appraisals change people's intentions and behavior? A meta-analysis of experimental studies. Psychol Bull. 2014;140:511-43.
20. Khubchandani J, Sharma S, Price JH, Wiblishauser MJ, Sharma M, Webb FJ. COVID-19 Vaccination Hesitancy in the United States: A Rapid National Assessment. J Community Health. 2021;46:270-77.
21. Malik AA, McFadden SM, Elharake J, Omer SB. Determinants of COVID-19 vaccine acceptance in the US. E-Clin Med. 2020;26:100495.

Cite this article as: Kumar A, Singh S, Sinha S, Kumar A, Nayan SK, Kumar S et al. The study about mindset of COVID-19 vaccination among health care employees and general population at tertiary care hospital. Int J Community Med Public Health 2022;9:679-83.