

Attitude of healthcare workers towards covid-19 vaccination

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Abstract

Background: Since the news of development of vaccine in India, there have been many speculations regarding their safety and efficacy. There have been various trial and error treatments since the conception of COVID-19 but no one treatment method had been guaranteed. But with the development of vaccine for corona virus a ray of hope was seen, a hope that this pandemic would end. So, to understand the beliefs and attitudes of people especially healthcare workers towards the vaccination, the 20 item attitude scale was developed and the study was conducted at SGT Hospital, Gurgaon.

Methods: The study was conducted on 680 healthcare workers who approached the SGT Hospital for COVID-19 vaccination. The sample included both the doctors and the nursing staff. Informed consent was

taken from them after they had taken the vaccine shot and were waiting in the observation room. After collection of sample, IBM SPSS was used to analyze the data, Kaiser-Meyer-Olkin (KMO) and Bartlett’s test was used to test the adequacy of data for factor analysis. On getting satisfactory result, factor analysis was done and results were calculated with the help of descriptive statistics.

Results: Factor rotation was done and from the 20 item questionnaire 11 items divided into 4 components were extracted. The components basically stated the reason behind formation of attitude towards the COVID-19 vaccine. These four components included positive perspective towards vaccination (5 items), fear of death and convincing by family (2 items), risk associated (2 items) and recommendation for others (2 items). The findings indicated that more than 90% healthcare

workers had positive perspective regarding taking the vaccine, around 50% were taking it because of fear of death and 60% because they were convinced by their family and friends. 48% HCW were concerned with the risks of taking the vaccine fearing its side effects and long term effects but they took it to set an example for the community members and more than 90% were in favor of helping through this vaccination process and recommending it to others.

Conclusion: It can be concluded from the findings that this positive attitude of healthcare workers towards the vaccination is a good sign. This would help build trust towards the vaccine developed among community members and mass vaccination for curbing the spread of corona virus would be possible.

Keywords: Attitude, Health Care Workers, Fear, Positive Perspectives, Risk and COVID-19 Vaccinations.

Introduction

COVID-19 the disease that lead to a global pandemic affecting more than 200 countries, emerged in the city of Wuhan, China in December 2019. COVID is said to have originated from a novel corona virus now called Severe Acute Respiratory Syndrome (SARS-COV-2). This was reported to emerge by consuming infected sea food and very soon it was discovered that this novel corona virus had the capacity to spread through close contact of humans among themselves. Thus, to curb the spread all the countries started precautionary measures by following WHO guidelines and implemented either complete or partial lockdown.

Corona virus is said to be made up of 29 SARS-COV-2 protein components. The major 4 components that actually make up the structure of this virus are- E, M, N and S protein¹. Anyone who contracts COVID-19 virus is supposed to have one or more of the following

symptoms- fever, dry cough, sore throat, tiredness, loss of sense of smell/taste, headaches, difficulty in breathing, pain in the chest region and/or loss of speech or movement².

People who have lived this pandemic know how much it has affected and changed their perspectives and their lives as a whole. Biological symptoms were experienced only by people who were tested positive for COVID-19 but everyone has had difficulties in other aspects of life including psychological and psychosocial aspects.

Common psychological issues faced by people because of COVID-19 are community anxiety due to fear of uncertainty about health, work and finances, consistent stress because of increasing number of cases and inability to differentiate between symptoms of COVID-19 and seasonal viral fevers, insomnia due to complete change in the routine and adjusting to a new normal, post-traumatic stress disorder, depression, and consistent feeling of worthlessness and hopelessness³. Along with the mental health issues everyone was also going through things like catering for needs of a COVID-19 positive person who were isolated at home, not being able to meet family members who were hospitalized, losing loved ones without saying goodbye, unexpected restrictions and regulations being imposed, fear of stigmatization and rejection from society in case of testing positive, and living constantly in a bubble of unknown⁴. Initial treatment of COVID included antiviral drugs (including Remdesivir, Emtricitabine and Tenofovir, Azvudine, Corticosteroids, Abidol hydrochloride, Baicalin), cellular therapy and plasma therapy (immunotherapy)⁵. Persistent efforts were made to develop a vaccination that could help prevent the virus altogether and help the world to overcome this pandemic. After a wait of almost an entire year the

UK's Medicines and Healthcare products Regulatory Agency gave temporary approval for Pfizer- BioNTech and Moderna vaccine followed by approval to another vaccine Johnson & Johnson.

By the end of year 2020, citizens of India started to envision the possibility of this pandemic coming to an end with the introduction of two Indian vaccines, Covishield (originally developed Oxford-AstraZeneca vaccine which was locally developed by Serum Institute of India) and Covaxin (which was developed by Bharat Biotech). Speculations related to their composition, effectiveness, side-effects, number of trials etc. also emerged with the news of their approval.

As understood from psychological perspective, researches have shown that people are scared of taking the vaccination because of fear, anxiety and their cognitive distortions. These distortions majorly include catastrophic misinterpretation of a physical symptom, fear of unknown and expecting the worst outcome⁶.

Considered from scientific perspective everyone is wondering as to how is it possible for a vaccine to be developed this fast⁷, especially for a disease like coronavirus. Generally the development process of any vaccine takes years and even longer to complete the trials on human population but in this case it was rolled out for the public even before completing the three clinical trials and no information has been provided by the manufacturing companies about the components of the vaccine made and whether it has any long term side-effects⁸. There have been reports of people testing positive for COVID, even after they got vaccinated. Although the percentage is very low but still there is no proof of the effectiveness of vaccine.

Since this whole COVID situation came up, the profession which got the most attention and stress was the frontline healthcare sector. They were among the

ones who got the maximum exposure and also had to perform their duties continuously without any break. With the news of vaccination being rolled out for emergency use, government made sure that the frontline healthcare workers feel rewarded by making them the first strata of society to get the vaccine. Although this news relieved many but there were speculations among the health care workers regarding the efficacy and safety of these vaccines. This led to ambiguity regarding their decision to take the vaccine and spread the negative message to the community members. Hence, there was a need to find out the factors which were associated with negative attitude of health care workers towards the vaccination. Therefore, the present study was planned with the aim to develop a reliable measure of attitude of health care workers towards COVID-19 vaccination and find out the psychosocial correlates which are associated with negative attitude of health care workers towards COVID-19 vaccination.

Methodology

In the present study, following objectives were formulated:

- Development of a tool to measure the attitude of health care workers towards COVID-19 vaccination.
- To study the attitude of health care workers towards COVID-19 vaccination.

Material & Method

Sample: The present study was conducted at SGT Hospital & Research Centre, a government approved centre for vaccination. A total number of 680 health care workers who approached the SGT Hospital for vaccination were taken up as participant in the present study. The data was collected between 25th January to 5th February, 2021. The mean age of the sample was

27.74 ± 10.90 with age ranges from 18 years to 74 years.

Tool used: A 20 items inventory was specifically designed for the present study. Initially the items were created by the main author and then all the items were revived by the three independent reviewers who were having adequate experience in test construction. After that their suggestion were incorporated and finally 20 items inventory was prepared with ‘Yes’, ‘No’ answers.

Procedure: After getting approval from the ethical committee of the Faculty of Behavioural Sciences. All the participants who gave informed consent and approached SGT Hospital & Research Centre for vaccination were selected as sample in the present study. Initially, the entire participant was screened by the medical officer before vaccination and after the authentication by medical officer for their safety to take

Table 1: Showing the sample characteristics of the sample.

Sn.	Variable		N	%
1.	Faculty	Faculty of Medical & Health Sciences	240	35.29
		Faculty of Nursing	235	34.56
		Faculty of Dental Sciences	98	14.42
		Pharmacy	22	3.23
		Others (Allied health sciences, Ayurveda, Physiotherapy and Behavioural Sciences)	85	12.5
2.	Gender	Male	296	43.53
		Female	384	56.47
3.	Marital Status	Married	280	41.17
		Unmarried	400	58.83
4.	Type of residence	Home	440	64.71
		University Residence	159	23.38
		Other (Relative Place and Paying Guest)	81	11.91
5.	Covid Status	Positive History	53	7.80
		Negative history	627	92.20

vaccine was given vaccine at SGT Hospital & Research Centre. After vaccine when the vaccinated participants were in the observation room, they were asked for informed consent to participate in the present study and after that those who gave informed consent filled the 20 items inventory and their responses were recorded by the examiner.

Statistical Analysis: The data was analyzed by using IBM, SPSS. Initially factor analysis was performed in order to extract factors with the Principal Component Method of factor analysis and 20 items were reduced to 9 items in four components. The four components were: 1. Positive Perspective 2. Fear and Conformity 3. Risk and 4. Recommendation for others. After that to know the attitude of the health care workers descriptive statistics was used for all these four components.

Table 1 shows the sample characteristics of the sample. Most of the sample included in the study were females 384 (56.47%), unmarried 400 (58.83%), and commute from home (64.71%). The most of the sample included

in the study were representative of Faculty of Medical & Health Sciences 240 (35.29%) and 235 (34.56%) nursing faculty. 7.80% of the total sample were having positive history of COVID-19.

Table 2: Showing the KMO and Bartlett's Test

Variable	Chi Square	Kaiser-Meyer-Olkin (KMO) Measure of Sample Adequacy	df	Level of Significance
Bartlett's Test of Sphericity	1377.514	0.735	190	0.0001

Kaiser-Meyer-Olkin (KMO) and Bartlett's test was done to measure the adequacy of the sample for factor analysis. A measure of sample adequacy close to 1

indicates an excellent adequacy. The result indicates MSA of 0.735 revealed that the sample size was adequate to perform factor analysis ($p < 0.001$).

Table 3: Showing the factor loading, communalities and component matrix of different factors.

Sn.	Items	Communalities	Factors			
			1 Positive Perspective	2 Fear & Conformity	3 Risk	4 Recommendations for others
1	I hope vaccine will bring a relief from COVID-19.	0.28	0.53			
2	I am worried COVID-19 vaccine may have serious side effects.	0.49			0.65	
3	I think that proper process has been followed in the production of COVID-19 vaccine in India.	0.14				
4	I believe that emergency approval of COVID-19 vaccine is risky for all.	0.49			0.58	
5	Government has made adequate arrangement for the nation-wide vaccination.	0.26				
6	My decision to take COVID-19 vaccine is not affected by media reports.	0.27				
7	Vaccination will be effective for complete eradication of COVID-19 infection.	0.26				
8	I have given a serious thought before deciding to take CoVID-19 vaccination.	0.25				
9	I shall help others to take COVID-19 vaccine.	0.64				0.78
10	I shall recommend others to take COVID-	0.69				0.81

	19 vaccine.					
11	I wish I had a choice of selecting a particular brand of vaccine.	0.14				
12	I think vaccination program will not be effective, if all people are not vaccinated,	0.23				
13	I am opting for vaccination for the sake of safety of my family and friends.	0.35	0.56			
14	I am getting Covid-19 vaccine out of the fear of death.	0.52		0.72		
15	I believe vaccination will help in bringing normal life back.	0.54	0.70			
16	I think vaccine has been started at the right time and will protect people from Covid-19 pandemic.	0.30	0.50			
17	I feel COVID-19 vaccine will not have any long-term serious side effects.	0.21				
18	My family and friends have convinced me to opt for vaccination.	0.45		0.64		
19	I was eagerly waiting for the launch of Covid-19 vaccine in India.	0.32				
20	I am grateful towards medical and govt functionaries for the launch of Covid-19 vaccine.	0.43	0.58			
Factor Loadings			11.32	19.98	28.33	36.57

Table 3 showing the factor loading, communalities and component matrix of different factors. It revealed that the cumulative variance explained by the first four components is 36.57% with the first component contributing maximum variance (11.32%). Factor rotation was done and after that all the four factors were extracted. For this purpose, the value above 0.5% were

selected. This resulted in the first component having 5 items, second component were having 2 items, third component were having 2 items and last component i.e., fourth were having 2 items. So finally, 11 items were extracted into four factors (Attached in Appendix-I).

Table 4: Showing the scores of factor 1 (Positive Perspective) adopted by the health care workers of the sample (% and frequency distribution).

Sn.	Item		N	%
1	I hope vaccine will bring a relief from COVID-19.	Yes	660	97.1
		No	20	2.9
13	I am opting for vaccination for the sake of safety of my family and friends.	Yes	649	95.4
		No	31	4.6
15	I believe vaccination will help in bringing normal life back.	Yes	633	93.1
		No	47	6.9
16	I think vaccine has been started at the right time and will protect people from Covid-19 pandemic.	Yes	607	89.3
		No	73	10.7
20	I am grateful towards medical and govt functionaries for the launch of Covid-19 vaccine.	Yes	661	97.2
		No	19	2.8

Table 4 showing the scores of factor 1 (Positive Perspective) adopted by the health care workers of the sample (% and frequency distribution). It shows that subjects included in the study were having positive perspective regarding vaccination as most of the health care workers (97.1%) were having belief that vaccine will bring a relief from COVID-19. 95.4% health care workers opted for vaccination for the sake of safety of

their family and friends, 93.3% believed that vaccination will help in bringing normal life back. Similarly, 89.3% thought that vaccine has been started at the right time and will protect people from Covid-19 pandemic and 97.2% were grateful towards medical and govt functionaries for the launch of Covid-19 vaccine.

Table 5: Showing the scores of factor 2 (Fear & Conformity) adopted by the health care workers of the sample (% and frequency distribution).

Sl. No.	Item		N	%
14	I am getting Covid-19 vaccine out of the fear of death.	Yes	357	52.5
		No	323	47.5
18	My family and friends have convinced me to opt for vaccination.	Yes	423	62.2
		No	257	37.8

Table 5 showing the scores of factor 2 (Fear & Conformity) adopted by the health care workers of the sample (% and frequency distribution). It shows that subjects included in the study were opting vaccination because of fear of death (52.5%) and as they had been convinced by their family members and friend (62.2%).

Table 6: Showing the scores of factor 3 (Risk) adopted by the health care workers of the sample (% and frequency distribution).

Sl. No.	Item		N	%
2	I am worried COVID-19 vaccine may have serious side effects.	Yes	332	48.8
		No	348	51.2
4	I believe that emergency approval of COVID-19 vaccine is risky for all.	Yes	281	41.3
		No	399	58.7

Table 6 showing the scores of factor 3 (Risk) adopted by the health care workers of the sample (% and frequency distribution). It shows that subjects included in the study were worried that (48.8%) COVID-19

vaccine may have serious side effects and 41.3% believed that emergency approval of COVID-19 vaccine is risky for all.

Table 7: Showing the scores of factor 4 (Recommendations for others) adopted by the health care workers of the sample (% and frequency distribution).

Sn.	Item		N	%
9	I shall help others to take COVID-19 vaccine.	Yes	647	95.1
		No	33	4.9
10	I shall recommend others to take COVID-19 vaccine.	Yes	635	93.4
		No	45	6.6

Table 7 showing the scores of factor 4 (Recommendations for others) adopted by the health care workers of the sample (% and frequency distribution). It shows that 95.1% health care workers included in the study help others to take COVID-19 vaccine and 93.4% shall recommend others to take COVID-19 vaccine.

Discussion

The aim of this study was to assess the attitude of healthcare workers who had come to take the COVID-19 vaccine in SGT University, Gurgaon. For this purpose, 680 health care workers who voluntary gave consent for vaccination were selected and assessed on 20 items inventory which was specifically designed to measure the attitude towards COVID-19 vaccination.

The results of the present study were analyzed by using IBM SPSS. The findings revealed that the sample size

was adequate to perform factor analysis ($p < 0.001$) by using Kaiser-Meyer-Olkin (KMO). Further, it revealed that the cumulative variance explained by the first four components is 36.57% with the first component contributing maximum variance (11.32%). Four factors were extracted into 11 items. This resulted in the first component having 5 items, second component were having 2 items, third component were having 2 items and last component i.e., fourth were having 2 items. These four factors basically represent the reason for formation of attitude (positive or negative) towards the vaccine as Positive Perspective, fear and conformity, risk and recommendation for others.

Based on items in positive perspective, it was found that more than 90% sample of healthcare workers were taking the vaccine shot because they believed this vaccine would help them and community at large. This

corroborated well with the study conducted on healthcare workers in France and French speaking region in Canada and Belgium. Their attitudes were studied even before vaccinations were introduced. The findings of that study suggested that healthcare workers showed high acceptance of the vaccine⁹. This might be because healthcare workers are familiar with the process of development of vaccine, and know how seriously all the guidelines are followed. Hence, more acceptance towards the vaccine.

Approximately half of the sample (52.5%) reported to get vaccine because of fear of death and more than half (62.2%) took it because of being convinced by people in their close circle. A study conducted on Indian citizen's attitude after the vaccination was introduced showed that people were ready to take the vaccine majorly because of fear of death¹⁰. It can be interpreted that by taking the vaccine people would be overcoming their fear of dying and that's why they are interested in taking the vaccine. Persuasion and convincing might have worked because close friends and family members know that healthcare workers are exposed on daily basis, making them more vulnerable to contract the virus. So, for their safety and because of unavailability of any other reliable treatment measure they convinced HCW to take the vaccination.

Around 40% healthcare workers who took the vaccination reported of being concerned about the side-effects of the same. Although the risk factor did not change their decision of getting vaccinated but upon asking they stated that it might have been risky to be among the first ones to get COVID vaccine. Despite of the fear and risk being in mind, more than 90% frontline healthcare workers agreed to help in the vaccination process and recommending it to the community members.

So on the basis of the findings of the present study, it can be concluded that health care workers were concerned about the side effects and safety of COVID-19 vaccine but at the same time found it only way to fight with COVID-19 which helps them in developing positive perspective regarding COVID-19 vaccination.

Any research conducted on human participants cannot refrain itself from some sort of bias or limitations. Similarly, there are several limitations of the present study. First and foremost being conduction of this attitude study only on the people who actually came for the vaccination, but the remaining healthcare workers who did not come were not taken into consideration. For better understanding, along with the latter group mentioned, community members should also have been included. This study was conducted during the first phase of vaccination, when there was already a lot of uncertainty and insecurity regarding the vaccine. There might have been a difference in the attitude if similar sample was assessed at the time of second dose of vaccination. While collecting the data for this study, those participants were approached who were in observatory room after the vaccine shot was taken. Except from sharing brief information regarding the study, no other contact was established. Hence, the researcher feels that if persuasion skills would have used with better efficacy then it would have given a better and clear picture. The sample was collected from a single vaccination centre i.e. SGT Hospital instead of covering healthcare workers from a multi-centric institutions.

Although the study was conducted at a single centre, but since the sample size was quite large, it can be ascertained that attitude of healthcare workers towards COVID vaccine is positive only. This study can be regarded as a strong one because the domains identified

for the attitude were determined from reliable psychometric method. Factor analysis of variable shows the strength of this study. This finding in itself sends a positive message to the community that if doctors or nursing staff who are exposing themselves to corona virus every day, feels that this vaccine can protect them from the virus, general public who are not that exposed would definitely get benefit from the antibodies made. And hence, ultimately end this pandemic. Another benefit of this study would be to the government to check for the negative attitude and plan awareness programs accordingly to help everyone gather more knowledge and be the part of mass vaccination.

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Appendix

Inventory for Attitude of Healthcare Workers regarding Covid-19 Vaccination.

Items	Factor	Yes	No
1. I hope vaccine will bring a relief from COVID-19.	I		
2. I am opting for vaccination for the sake of safety of my family and friends.	I		
3. I believe vaccination will help in bringing normal life back.	I		
4. I think vaccine has been started at the right time and will protect people from Covid-19 pandemic.	I		
5. I am grateful towards medical and govt functionaries for the launch of Covid-19 vaccine.	I		
6. I am getting Covid-19 vaccine out of the fear of death.	II		
7. My family and friends have convinced me to opt for vaccination.	II		
8. *I am worried COVID-19 vaccine may have serious side effects.	III		
9. *I believe that emergency approval of COVID-19 vaccine is risky for all.	III		
10. I shall help others to take COVID-19 vaccine.	IV		
11. I shall recommend others to take COVID-19 vaccine.	IV		

*items are scored in reversed manner.