Research Paper E-ISSN NO : 2455-295X | VOLUME : 7 | ISSUE : 4 | APRIL 2021

ASSESSMENT OF FACTORS AFFECTING HESITANCY TO TAKE COVID 19 VACCINE IN AHMEDABAD CITY, GUJARAT, INDIA

DR JINAL BEN NOGAS [1] | *DR DHAVAL V. PAREKH [2] | DR RUTVI VAIDYA [3] | ARUN JAIN [4] | MAHIR PATEL [5]

[1] RESIDENT DOCTOR, COMMUNITY MEDICINE DEPARTMENT, BJ MEDICAL COLLEGE, AHMEDABAD.
[2] SENIOR RESIDENT, COMMUNITY MEDICINE DEPARTMENT, BJ MEDICAL COLLEGE, AHMEDABAD.
[3] RESIDENT DOCTOR, COMMUNITY MEDICINE DEPARTMENT, BJ MEDICAL COLLEGE, AHMEDABAD.
[4] MBBS STUDENT, BJ MEDICAL COLLEGE, AHMEDABAD.
[5] MBBS STUDENT, BJ MEDICAL COLLEGE, AHMEDABAD.

CORRESPONDING AUTHOR: DR DHAVAL V PAREKH
EMAIL ID: dhavalparekh32@gmail.com

ABSTRACT:

BACKGROUND:

Vaccine hesitancy refers to delay in acceptance or refusal of vaccination despite the vaccination service being available. After the COVID-19 vaccine started to rollout, besides enthusiasm, news regarding adverse effects experienced by a few vaccine recipients along with misinformation and conspiracy theories on social media have drawn worldwide attention. Hence, puzzling news on the vaccine effectiveness by the media has had a negative impact on potential vaccine recipients.

METHODOLOGY:

A cross-sectional study was conducted where a pre formed semi structured questionnaire was sent using google forms. The questionnaire was prepared in English, Hindi and Gujarati and circulated amongst the study population. Sample size of 100 was taken of which 50 were health care providers and 50 were from the general population. The questionnaire was sent using Whatsapp, SMS and email to all participants allowing data capture from various places. Analysis was done using Microsoft excel 2019 and Google forms.

RESULT:

Among heath care providers, 72% were willing to take the vaccine as compared to 34% among non heath care providers. The main reasons for hesitancy to take vaccine were fear of side effects (38.24%) followed by thinking that the vaccine is not safe (19.05%). The main source of information about vaccine related information was found to be social media (29%). A significant association was seen between vaccine awareness, occupation and notions about vaccination with the willingness to take vaccine ($p<0.05$).

CONCLUSION:

Healthcare providers can play a key role in decreasing the vaccine hesitancy and addressing the doubts related to vaccine. Reliable and accurate information should be made available to the common public with the help of mass media. Spreading awareness about the importance of vaccination and its role in attaining herd immunity will be a major step in the fight against this pandemic.

KEYWORDS:

COVID19 VACCINE, VACCINE HESITANCY, MISINFORMATION, AWARENESS.

INTRODUCTION:

Vaccination is a safe and effective, yet simple method of protecting people against harmful diseases, before they can come in contact with them. It makes use of the body's natural defense mechanisms to build resistance to particular infections and makes our immune system stronger. Vaccines stimulate the immune system to produce antibodies, similar to when it is exposed to a disease. However, because vaccines contain only killed or attenuated forms of germs like viruses or bacteria, they do not cause severe disease or put us at risk of associated complications.[1]

The COVID-19 pandemic is an ongoing pandemic caused by severe acute respiratory syndrome corona virus 2 (SARS-CoV-2). It was first identified in Wuhan, China in December 2019. In January 2020, the World Health Organization declared the outbreak a Public Health Emergency of International Concern and a pandemic in March 2020. Subsequently many countries began developing COVID-19 vaccines.[1]

The COVID vaccine was launched on 16th January, 2021 in India. However, a vaccination program can be undermined by factors such as vaccine hesitancy. Vaccine hesitancy refers to delay in acceptance or refusal of vaccination despite availability of the vaccination service. WHO declared vaccine hesitancy as one of the top ten global health threats in 2019. After the COVID-19 vaccine started to rollout, besides enthusiasm, news regarding adverse effects experienced by a few vaccine recipients along with misinformation and conspiracy theories on social media have drawn worldwide attention. Hence, puzzling news on the vaccine effectiveness by the media has had a negative impact on potential vaccine recipients. Moreover, hesitancy and anxiety has been heightened further due to the accelerated pace of vaccine development. Along with knowledge and awareness-related issues, vaccine hesitancy can also be determined by religious, cultural, gender, or socio-economic factors.[2,3,4,5]

MATERIALS AND METHOD:

A cross-sectional study was conducted where a pre formed semi structured questionnaire was sent using Google forms. A pretested questionnaire was used which was validated with the help of a pilot study. A pilot study was conducted among 20 persons taking 10 respondents from health care providers and 10 from the general population. The questionnaire was prepared in English, Hindi and Gujarati and circulated amongst all study population. Sample size of 100 was taken of which 50 were health care providers and 50 were from the general population. The questionnaire was sent using Whatsapp, SMS and email to all participants allowing data capture from various places. Ethical approval was approved for this study. Prior informed consent had been taken from our study population. Analysis was done using Microsoft excel 2019 and Google forms.

RESULTS:

A total of 100 respondents were taken of which 61% were male and 39% female. Majority (74%) were in the 15-24 years age group followed by the 25-34 years age group (16%) and 35-44 years age group (6%). (Table 1)

Amongst the respondents, 50% belonged to a nuclear family, 38% to a joint family and 12% were living single. 66% were Hindu, 10% Jain, 4% Muslim while 20% didn't disclose their religion. As for education level, 65% were graduates, 22% had some level of school education, 11% were post graduates and 2% were illiterate. Among health care providers, 46% were doctors, 24% nursing staff and 16% paramedical personnel. Among non health care providers, 46% were employed in some job, 40% had their own business and 8% were daily wagers. (Table 2)

The respondents had varied sources of information about the Covid vaccine. Majority (29%) got information from social media, 25% from newspapers and television, 22% from family and friends, 17% from health care providers and 7% from research material. (Figure 1)

It was observed that among heath care providers, 72% were willing to take the vaccine as compared to 34% among non heath care providers. (Table 3)

The main reason for hesitancy to take vaccine was fear of side effects (38.29%) followed by not thinking that it is safe (19.05%), already having tested Covid positive (14.89%), not having enough information (10.64%), thinking that vaccine is a hoax (8.51%) and thinking that the vaccine is not effective (2.13%). (Table 4)

A significant association was seen between vaccine awareness, occupation and notions about vaccination with the willingness to take vaccine ($p<0.05$). (Table 5)

DISCUSSION:

Hesitancy to vaccination will be a major public health challenge in this ongoing fight against the Covid pandemic. Addressing the misconceptions and fears associated with it will be a key factor.

In our study, 61% of the respondents were male while 39% were female with majority (74%) being in the 15-24 years age group. In a study conducted in Cameroon 54.9 % were female and 45.1% male with most respondents in the 18-25 years age group.[3] In a study done in France, 51.1% were female and 48.9% male with most (23.1%) respondents in the 45-54 years age group.[4] In a study carried out in Bangladesh, 59.2% were male and 39.6% female with majority (40.7%) being in the 26-40 years age group.[2]

Our study had 50% respondents living in a nuclear family and 38% living in a joint family while in the study conducted in Bangladesh, 63.1% were staying in a nuclear family and 36.9% in a joint family. Our study comprised of 66% Hindu respondents and 4% Muslim respondents in comparison to the study conducted in Bangladesh which had 93.2% Muslim respondents and 5.4% Hindu respondents.[2] Majority (65%) of our respondents were graduates which was similar to the study conducted in Bangladesh with most respondents having a Bachelor's degree while in the study conducted in France, most respondents had some high school education.[2,7]

It was observed that 72% of the health care providers were willing to take the vaccine as compared to 34% willingness amongst non health care providers. This may be due the fact that health care providers have more knowledge and awareness about the vaccine as compared to the lay public, thus being less likely to be swayed by rumors and misinformation. In a study conducted in United Kingdom,[8] 14.5% respondents were unlikely to take the vaccine and 22.5% were unsure

whether they wanted to take the vaccine or not.

Amongst those unwilling to take the vaccine, 38.24% feared risk of side effects, 19.05% did not think it was safe, 14.89% said that they had already been infected and did not require a vaccine, 10.64% did not have enough information about it, 8.51% thought that vaccine was a hoax and 2.13% said that they didn't think it would be effective. It was also observed that maximum (29%) respondents reported social media as their primary source of information about vaccination. Thus, lack of awareness coupled with unreliable sources of information could mislead the general population into hesitancy to take the vaccine. In a similar study conducted in the United Kingdom, the main reasons for vaccine hesitancy were the risk of unforeseen effects, preference for natural immunity, concerns about commercial profiteering and general mistrust of vaccine benefit while in a study conducted in the United States of America, fear of side effects and lasting health problems were the main reasons cited for hesitancy. [8,9]

CONCLUSION AND RECOMMENDATIONS:

Out of a total of 100 respondents, 61 were male and 39 female with majority (74%) being in the age group of 15-24 years age group. 50% lived in a nuclear family while 38% lived in a joint family. 66% respondents were Hindu, 10% Jain and 4% Muslim. Most (65%) had graduate level of education. Out of 100 respondents, 50 were health care providers and 50 were from the general population.

Among heath care providers, 72% were willing to take the vaccine as compared to 34% among non heath care providers. The main reasons for hesitancy to take vaccine were fear of side effects (38.24%) followed by thinking that the vaccine is not safe (19.05%). The main source of information about vaccine related information was found to be social media (29%). A significant association was seen between vaccine awareness, occupation and notions about vaccination with the willingness to take vaccine ($p<0.05$).

It was observed that health care providers were more aware about vaccination and its related benefits and risks. Family physicians and other healthcare providers can play a key role in decreasing the vaccine hesitancy and addressing the doubts related to vaccine in the general population. Reliable and accurate information about the COVID 19 vaccine should be made available to the common public with the help of mass media. Awareness about the mild and the serious AEFIs following vaccination and how to manage them in the vaccine recipients should be spread through public platforms and mass media. Spreading awareness about the importance of vaccination and its role in attaining herd immunity will be a major step in the fight against this pandemic.

TABLE 1: DISTRIBUTION OF RESPONDENTS ACCORDING TO AGE AND SEX:

Age Group	No. of Male(%)	No. of Female(%)	Total (n=100)
15-24	44(44)	30(30)	74(74)
25-34	11(11)	05(5)	16(16)
35-44	04(4)	02(2)	06(6)
45-54	02(2)	00(0)	02(2)
55 &above	00(0)	02(2)	02(2)
Total	61(61)	39(39)	100(100)

TABLE 2: SOCIO-EPIDEMIOLOGICAL PROFILE OF RESPONDENTS:

Type of family	**No(%)**		
Nuclear	50		
Joint	38		
Living single	12		
Religion			
Hindu	66		
Jain	10		
Muslim	4		
Did not disclose	20		
Education			
Illiterate	2		
School Education(primary/secondary/ HSC)	22		
Graduate	65		
Postgraduate	11		
Occupation			
Health Care worker		**Non health care worker**	
Occupation	**No(%)**	**Occupation**	**No(%)**
Doctor	23(46)	Job	23(46)
Nursing	12(24)	Business	20(40)
Paramedical	08(16)	Daily labourer	4(8)
Others(sweepers, police,etc)	03(06)	Others(teachers,housewife,etc)	3(6)

FIGURE 1: SOURCES OF INFORMATION ABOUT COVID 19 VACCINE

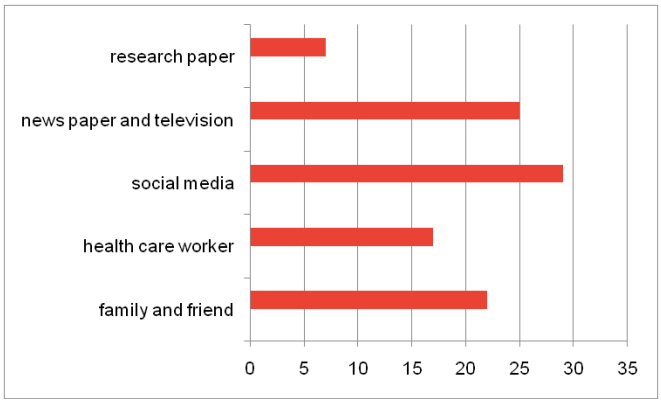

TABLE 3: WILLINGNESS TO TAKE VACCINE:

	No. of Health Care providers (%) (n=50)	No. of Non health care providers (%) (n=50)
Male	18(36)	08(16)
Female	18(36)	09(18)
Total	36(72)	17(34)

TABLE 4: REASON FOR HESITANCY TO TAKE VACCINE:

Reason for Hesitancy	No(%) (n=47)
Don't think it is safe	9(19.05)
Don't think it is effective	1(2.13)
Already had covid	7(14.89)
Have fear of side effects	18(38.29)
Think vaccine is a hoax	4(8.51)
Don't have enough information	5(10.64)
Other	3(6.38)

TABLE 5: ASSOCIATION OF VACCINE AWARENESS, LEVEL OF EDUCATION, OCCUPATION AND NOTIONS ABOUT VACCINATION WITH WILLINGNESS TO TAKE VACCINE

	Willing to take vaccine	Not willing to take vaccine	
Awareness about vaccine			**P value**
Aware	41	15	p<0.00001*
Not aware	12	32	
Education			
Illiterate	01	01	p value 0.54837
School Education	12	10	
Graduate	32	33	
Postgraduate	08	03	
Occupation			
Health care provider	36	14	p value 0.000141*
Non health care provider	17	33	
Notions about vaccination			
Vaccine is safe	50	23	p<0.00001*
Vaccine cause harm full side effect	03	24	

*Indicates significant association (p<0.05)

REFERENCES

1. WHO. Vaccines and immunization: What is vaccination? Available at https://www.who.int/news-room/q-a-detail/vaccines-and-immunization-what-is-vaccination?adgroupsurvey={adgroupsurvey}&gclid=Cj0KCQjwl9GCBhDvARIsAFunhskI2GfqgJw8AZze9grhwgHuJOqKCwVIgjLSt09v1Yyh10jczCPGrmQaAgwrEALw_wcB. Last accessed on 20/03/2021.

2. Ali M, Hossain A. What is the extent of COVID-19 vaccine hesitancy in Bangladesh?: A cross-sectional rapid national survey. medRxiv. 2021 Jan 1.

3. Baden LR, El Sahly HM, Essink B, Kotloff K, Frey S, Novak R, Diemert D, Spector SA, Rouphael N, Creech CB, McGettigan J. Efficacy and safety of the mRNA-1273 SARS-CoV-2 vaccine. New England Journal of Medicine. 2021 Feb 4;384(5):403-16.

4. Cooper WO, Habel LA, Sox CM, Chan KA, Arbogast PG, Cheetham TC, Murray KT, Quinn VP, Stein CM, Callahan ST, Fireman BH. ADHD drugs and serious cardiovascular events in children and young adults. New England Journal of Medicine. 2011 Nov 17;365(20):1896-904.

5. Cooper WO, Habel LA, Sox CM, Chan KA, Arbogast PG, Cheetham TC, Murray KT, Quinn VP, Stein CM, Callahan ST, Fireman BH. ADHD drugs and serious cardiovascular events in children and young adults. New England Journal of Medicine. 2011 Nov 17;365(20):1896-904.

6. Dinga JN, Sinda LK, Titanji VP. Assessment of vaccine hesitancy to a COVID-19 vaccine in Cameroonian adults and its global implication. Vaccines. 2021 Feb;9(2):175.

7. 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. The Lancet Public Health. 2021 Feb 6.

8. Paul E, Steptoe A, Fancourt D. Attitudes towards vaccines and intention to vaccinate against COVID-19: Implications for public health communications. The Lancet Regional Health-Europe. 2021 Feb 1;1:100012.

9. Daly M, Robinson E. Willingness to Vaccinate Against COVID-19 in the US: Representative Longitudinal Evidence From April to October 2020. American Journal of Preventive Medicine. 2021 Feb 15.

10. MacDonald NE. SAGE Working Group on Vaccine Hesitancy. Vaccine hesitancy: definition, scope and determinants. Vaccine. 2015 Aug 14;33(34):4161-.

11. Marti M, de Cola M, MacDonald NE, Dumolard L, Duclos P. Assessments of global drivers of vaccine hesitancy in 2014—Looking beyond safety concerns. PloS one. 2017 Mar 1;12(3):e0172310.

12. Lane S, MacDonald NE, Marti M, Dumolard L. Vaccine hesitancy around the globe: Analysis of three years of WHO/UNICEF Joint Reporting Form data-2015–2017. Vaccine. 2018 Jun 18;36(26):3861-7.

13. Hogan A, Winskill P, Watson O, Walker P, Whittaker C, Baguelin M, Haw D, Lochen A, Gaythorpe K, Ainslie K, Bhatt S. Report 33: Modelling the allocation and impact of a COVID-19 vaccine.

14. Saad-Roy CM, Wagner CE, Baker RE, Morris SE, Farrar J, Graham AL, Levin SA, Mina MJ, Metcalf CJ, Grenfell BT. Immune life history, vaccination, and the dynamics of SARS-CoV-2 over the next 5 years. Science. 2020 Nov 13;370(6518):811-8.

15. Polack FP, Thomas SJ, Kitchin N, Absalon J, Gurtman A, Lockhart S, Perez JL, Pérez Marc G, Moreira ED, Zerbini C, Bailey R. Safety and efficacy of the BNT162b2 mRNA Covid-19 vaccine. New England Journal of Medicine. 2020 Dec 31;383(27):2603-15.

16. Randolph HE, Barreiro LB. Herd immunity: understanding COVID-19. Immunity. 2020 May 19;52(5):737-41.

17. de Figueiredo A, Simas C, Karafillakis E, Paterson P, Larson HJ. Mapping global trends in vaccine confidence and investigating barriers to vaccine uptake: a large-scale retrospective temporal modelling study. The Lancet. 2020 Sep 26;396(10255):898-908.

18. Peretti-Watel P, Seror V, Cortaredona S, Launay O, Raude J, Verger P, Fressard L, Beck F, Legleye S, l'Haridon O, Léger D. A future vaccination campaign against COVID-19 at risk of vaccine hesitancy and politicisation. The Lancet Infectious Diseases. 2020 Jul 1;20(7):769-70.

19. US Food and Drug Administration. FDA takes additional action in fight against COVID-19 by issuing emergency use authorization for second COVID-19 vaccine.

20. Bartsch SM, O'Shea KJ, Ferguson MC, Bottazzi ME, Wedlock PT, Strych U, McKinnell JA, Siegmund SS, Cox SN, Hotez PJ, Lee BY. Vaccine efficacy needed for a COVID-19 coronavirus vaccine to prevent or stop an epidemic as the sole intervention. American journal of preventive medicine. 2020 Oct 1;59(4):493-503.

21. Dodd RH, Cvejic E, Bonner C, Pickles K, McCaffery KJ, Ayre J, Batcup C, Copp T, Cornell S, Dakin T, Isautier JM. Willingness to vaccinate against COVID-19 in Australia. The Lancet Infectious Diseases. 2021 Mar 1;21(3):318-9.