Research Article

A Study On Acceptance Of Covid-19 Vaccination (Booster Dose) Among General Public In Dakshina Kannada

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ABSTRACT

India launched the COVID-19 booster dose vaccinations on July 15 2022; however there wasn't much acceptance of it. Implementing a self-administered questionnaire, a prospective observational study was undertaken among the general public in Mangalore from 30th Jan 2022-11th Sep 2022, with the purpose of determining the acceptance and challenges of the COVID-19 vaccination. Social Science Software was used to examine the data. Chi-square test was used to assess the association between vaccine acceptance, demographic & non-demographic factors. Socio demographic characteristic influenced non vaccination. Majority of males (78%), urban residence (49%) university level education (40%), age >60 years with co-morbidity (62%) had high acceptance, but it was less in 3rd (15%) comparing with 1st (13%) and 2nd (72%) dose, often cited reasons for accepting vaccine were family/friends advice, fear of contracting disease and govt awareness camp. Social habits (37.5%), myths viz religiosity (33%), menstruation and infertility (41%), weakening of immunity (41%), contributed for non acceptance, but in 3rd dose concerns about fear of long term effects (76%), economy (32%), social media (7%) and having no reasons (5.6%).This study concludes a high level of COVID-19 booster dose vaccine hesitancy among Public. Efforts to provide accurate information on vaccine safety and effectiveness are highly recommended..

INTRODUCTION

The COVID-19 pandemic, which initially surfaced in late 2019, was an important milestone for global public health because to its exceptional morbidity and fatality rates and quick spread from continent to continent. Since then, governments and medical institutions from all over the world have attempted to eradicate the epidemic by employing a number of tactics, chief among them being the development and dispersal of vaccines. A characteristic of the battle against the novel corona virus has been a massive immunization program

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designed to protect India's vast and diverse population[1].

The booster dose, also known as the preventative dose was implemented in India on the occasion of "AZADI KA AMRIT MAHOTSAV". The Indian government decided to provide free vaccinations to every individual over the age of 18 years for a period of 75 days ,from july 15 to 30th sept. Prime Minister Narendra Modi declared in his speech to the nation on December 25, 2021 that frontline healthcare workers, elderly people with co-morbidities, and healthcare providers would begin receiving the COVID-19 "precaution dose" vaccine. After receiving the first series vaccine, booster doses can help to maintain or improve protection that may have weakened over time [2].

The choice to administer COVID-19 booster dose in India would be based on a number of variables, including the emerging nature of pandemic, whether vaccinations are readily available, and advice from medical authorities such as the Indian Council of Medical Research and the Ministry of Health and Family Welfare. Public Health professionals and government representatives would consider variables like the efficiency of the vaccine, the occurrence of novel variations and the requirement to safeguard vulnerable groups[3].

METHODOLOGY:

STUDY DESIGN AND PARTICIPANTS: The present work was a prospective observational study that was carried out in Mangalore. Data were collected using a convenience sampling method between 30th Jan-11th Sep.

Study criteria: Individuals who expressed aninterest in participation were included in the study and Subjects not willing to participate are excluded from the study

Source of Data: Data(s) were collected using the pre-validated questionnaires through direct interaction with the subjects in various locations of Dakshina Kannada. The current study included participants from a variety of socio-demographic backgrounds. Each participant took 3mins time to complete the questionnaire.

Study Method: The data were collected by using a prevalidated questionnaire from the study individuals[4]. Inform consent form was prepared in English and Kannada and the same were used before the selection of subjects. The informed consent form was explained to the participants and consent only participated in the survey. The pre-validated questionnaire was used in the study which was divided into three sections. The collected data(s) were kept confidential. Covid-19 booster vaccine perception: The present study analyzed the perception and challenges behind covid-19 booster dose acceptance by general public. The collected data(s) were analyzed using Microsoft Excel and Descriptive statistics were used to characterize the socio-demographic information of the people. Ethical approval was obtained by the Institutional Ethics Committee (IEC) of Srinivas Institute of Medical Science, Mukka, Mangalore.

RESULTS:

1. Area wise distribution of study participants
Area wise distribution of study participants from different parts of Dakshina Kannada district is summarised in Table no.1.

Table no. 01: Area wise distribution of study

Rural	Respondents	Urban	Respondents
Puttur	99(9.9%)	Bejai	156(15.6%)
Adyar	78(7.8%)	Talapady	109(10.9%)
Thumbe	135(13.5%)	Kankanady	78(7.8%)
Baikampady	94(9.4%)	Mulki	49(4.9%)
Attur	86(8.6%)	Surathkal	116(11.6%)

2. Socio Demographic characteristics of participants

Table no:2 suggests the socio-demographic characteristics of the study participants (n=1000) viz General population =1000

Table no. 02: Socio Demographic characteristics of participants (n=1000)

SI No.	Demographic characteristics	Gender (n=1000)	
		Male(500) 50%	Female(500) 50%
1	Age		
	18-40	202((24%)	170(16%)
	41-60	211(24%)	245(18%)
	>60	87(7.7%)	85(9.5%)
2	Education		
	Illiterate	76(7.3%)	65(6.5%)
	Primary school	124(15%)	135(13%)
	SSLC level	105(11%)	108(10%)
	University level	195(21%)	192(19%)
3	Residency		
	Rural	285(28%)	207(20%)
	Urban	215(21%)	293(29%)
4	Social habits		
	Alcoholic	103(20%)	59(11%)
	Smoker	87(17%)	14(2.8%)
	None	310(62%)	427(85%)
5	Religion		
	Hindu	250 (25%)	158(15%)
	Muslim	120(12%)	128(12%)
	Christian	130(13%)	214(21%)
6	Economy		
	APL	222(31%)	241(14%)
	BPL	278(34%)	259(19%)
	Christian	130(13%)	214(21%)

3. Association between socio-demographic characteristics with vaccination

3.1: Gender V/S in vaccination status

Gender equality was maintained in the study male (50%) and female (50%). Available data on vaccination rate in developing countries suggests that poor vaccination was observed in females also from the current study it is reflected the same female (32%) compared to that of (39%). Noticeable association of COVID-19 vaccine hesitancy and being female *only* for key workers (mainly individuals employed in positions in health care, education and childcare or positions crucial for providing food, necessities and utilities).

3.2: Age wise distribution of study participants

The highest acceptance of the COVID 19 vaccine was seen in the age group >60 years at 21% in urban areas with 50% vaccination was made compulsion for > 60 year age group and over 45 years with co-morbidities , the lowest acceptance was seen in 18-40 year age group.

3.3: Education level and COVID-19 vaccination willingness

Education plays a crucial role in vaccination. It also witnessed from the current study that willingness to receive COVID-19 vaccination was higher in university level at 47% and lowest acceptance was found in illiterate at 9%.

3.4: Effect of social habits on vaccination

Furthermore, social habits showed an influence on vaccine acceptance with 33% of participants consuming alcohol, had an myth of consumption of alcohol is forbidden and poisonous when vaccinated.

3.5: Role of religiosity in COVID-19 vaccine hesitancy

The religious belief except for Islam correlated positively with vaccination rates. Islam correlated negatively with 18%, hence the myth was the main barrier identified in Muslim population.

3.6: Acceptance of urban and rural

As new emerging variants of covid-19 has been seen frequently, the present survey reveals if urban are willing to get a Covid-19 booster dose or not. Among those who have taken both the doses of the vaccine (71%), a lower proportion (12.4%) show willingness to take the booster dose without hesitation, a higher proportion (87.6%) are reluctant to take an additional shot while one in ten remain unsure of their decision (2.4%). The survey found that vaccine hesitancy appears to be higher in rural and women as compared to urban cities. The study also collected the top reasons behind people's reluctance to get the booster dose viz., (Table no: 02)

SI N o.	Demographic characteristics	Vaccinated 716 (71%)			Not vaccinated 284 (28%)	Chi square test
		1st dose	2nd dose	3rd dose		
1	Age					
	18-40	07(0.9%)	178(24%)	21(2.9%)	166(58%)	
	41-60	18(2.5%)	296(41%)	45(6.2%)	97(34%)	P value < 0.01
	>60	06(0.8%)	122(17%)	23(3.2%)	21(7.3%)	
2	Education					
	Illiterate	4(0.5%)	31(4.3%)	8(1.1%)	98(34%)	
	Primary school	5(0.6%)	141(19.6%)	15(2.0%)	98(34%)	
	SSLC level	10(1.3%)	101(14%)	25(3.4%)	77(27%)	P value< 0.01
	University level	12(1.6%)	323(45%)	41(5.7%)	11(3.8%)	
3	Domicile					
	Rural	20(2.7%)	284(39%)	38(5.3%)	150(52%)	
	Urban	11(1.5%)	312(43.5%)	51(7.1%)	134(47%)	P value<0.01
4	Social habits					
	Alcoholic	3(0.4%)	55(7.6%)	9(1.2%)	95(33%)	P value <0.01
	Non alcoholic	28(3.9%)	541(75%)	80(11%)	189(66%)	
	Smoker	4(0.5%)	63(8.7%)	8(1.1%)	26(9.1%)	
	Non-smoker	27(3.7%)	533(74%)	81(11.3%)	258(90%)	P value <0.01
	None	24(3.3%)	478(66.7%)	72(10%)	163(57%)	P value <0.01
5	Religion					
	Hindu	10(1.3%)	198(27.6%)	37(5.1%)	163(57%)	
	Muslim	5(0.6%)	184(25.6%)	8(1.1%)	51(18%)	P value<0.01
	Christian	16(2.2%)	214(29.8%)	44(6.1%)	70(25%)	
6	Economy					
	APL	18(2.5%)	328(45.8%)	42(5.8%)	75(26%)	P value<0.01
	BPL	13(1.8%)	268(37.4%)	47(6.5%)	209(73%)	

Table no .03: Association between socio-demographic characteristics with vaccination

It was found that there was significant association between age group, domicile, educational status, alcoholic , non-alcoholic, smokers, non-smokers, religion, economic status and vaccination status at p<0.05
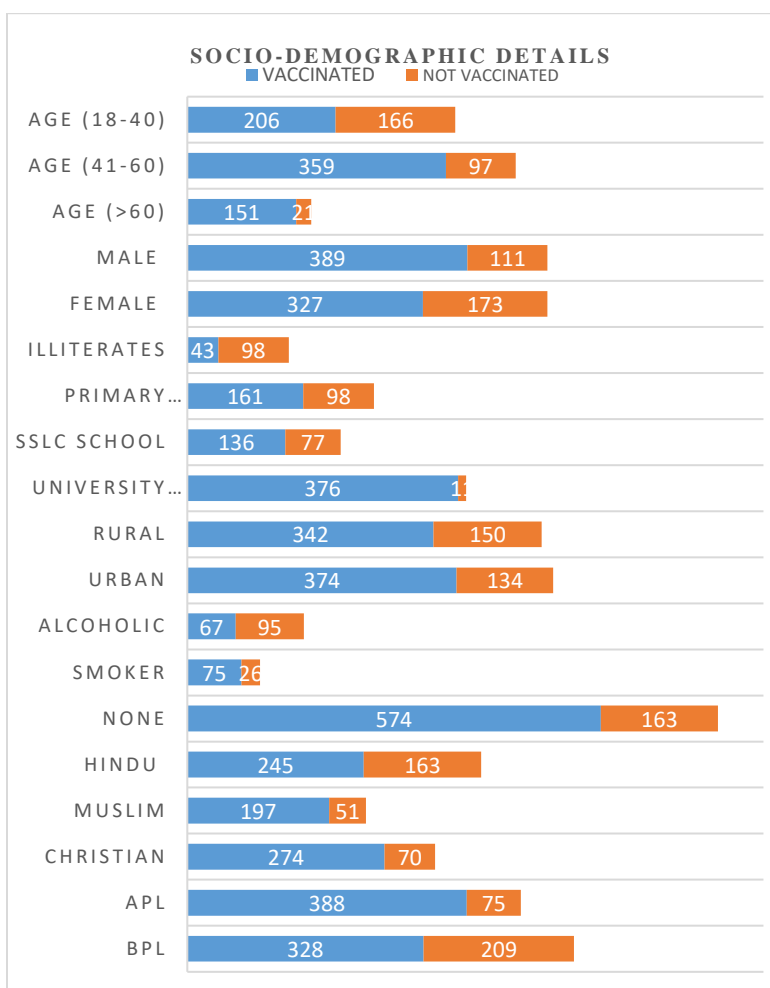
Fig no: 01 Association between socio-demographic characteristics with vaccination

4. Impact of co morbidities on covid 19 vaccination

Co morbidity have influenced the quality of life among covid-19 and association of death was high during first wave and health ministry also given the first priority of vaccination for these category in all vaccination program. Cardiovascular disease was the most common co morbidity found in our study with 45.6% and also Diabetes Mellitus with 19.3% followed by Asthma 10% and HTN + Diabetes mellitus with 26.9%. The higher level of acceptance was found with patient's co morbid conditions among all.

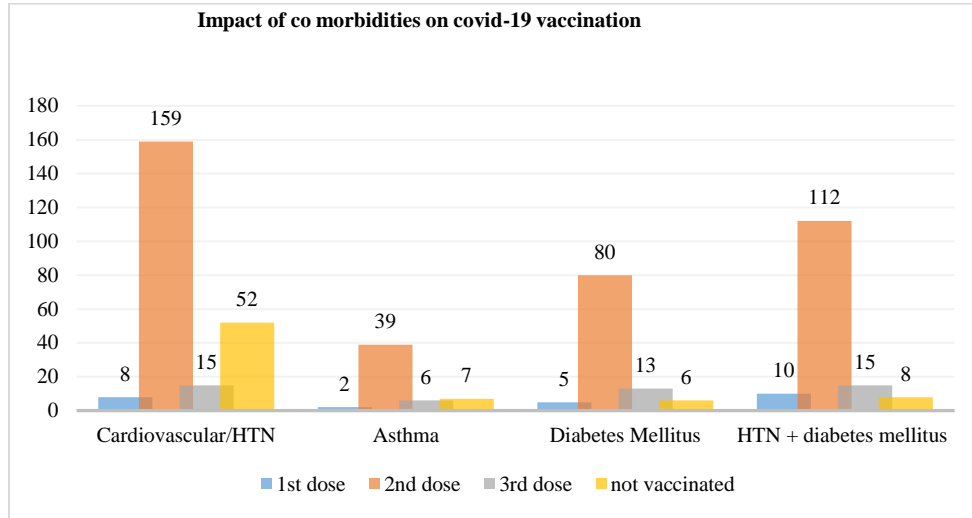| SL NO		Gender (n=537)	Vaccinated (n=464)				Not vaccinated (n= 73)
		Male	Female	1st dose	2nd dose	3rd dose	
Co morbidities							
1	Cardiovascular/ HTN	150(28%)	84(15.6%)	8(1.7%)	159(34.6%)	15(3.8%)	52(71%)
2	Asthma	40(7.4%)	14(2.6%)	2(0.4%)	39(8.6%)	6(1.5%)	7(9.5%)
3	Diabetes mellitus	69(12.8%)	35(6.5%)	5(1.0%)	80(18%)	13(2.8%)	6(8.2%)
4	HTN+Diabetes Mellitus	92(17.1%)	53(9.8%)	10(2.1%)	112(24.1%)	15(3.0%)	8(11%)

Fig no: 02 Impact of co morbidities on Covid-19 Vaccination

5. Economy v/s Site of vaccination

Economy plays a major role for vaccination due to the pandemic financial problems were faced by the public, even the present study evident by having a data of 69% preferred free vaccination, 12.6% preferred booster dose out of them a majority (53%) belonged to BPL which had hindered them in receiving vaccine.

SL NO		Gender (n=716)		Vaccinated		
		Male (n=390)	Female (n=326)	1st dose(n=31)	2nd dose (n=596)	3rd dose (n=89)
		Site of vaccination				
1	Government hospital	279(39%)	217(30%)	12(1.6%)	440(61%)	44(6.1%)
2	Private hospital	111(15%)	109(15.2%)	19(2.6%)	156(22%)	45(6.2%)
	a.lack of free supply	29(4%)	26(3.6%)	9(1.2%)	34(4.7%)	18(2.5%)
	b. superior quality	27(3.7%)	34(4.7%)	6(0.8%)	43(6.0%)	18(2.5%)
	c.time consuming in queue	55(7.6%)	49(6.8%)	4(0.5%)	79(11%)	9(1.2%)

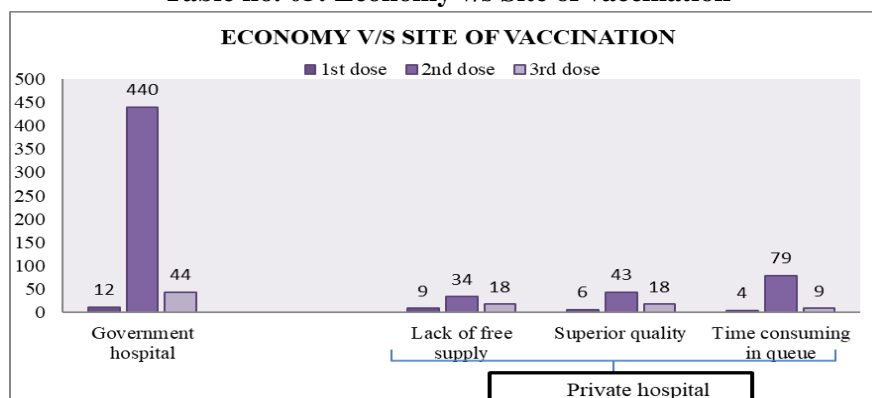**Table no. 05: Economy v/s Site of vaccination**

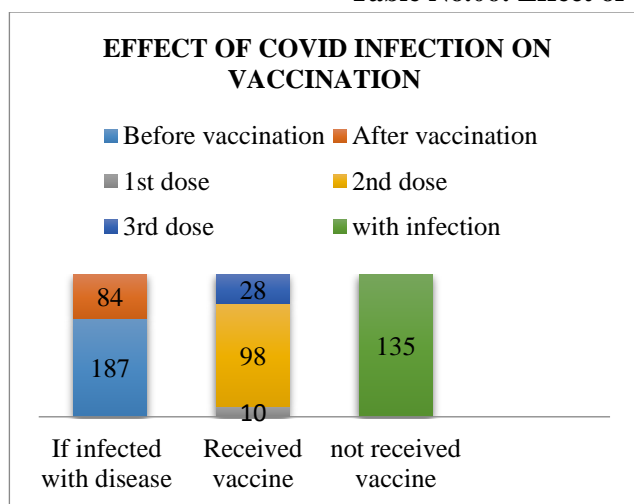**Fig no: 03 Economy v/s Site of Vaccination**

6. Effect of covid-19 infection on vaccination

Individual after COVID-19 infection will be in perception of developed immunity and health regulation bodies permitted to vaccination only after 3months duration for taking vaccine was only after 3 months of infection.The data obtained from this study reveals that 27% were infected with COVID-19 infection in which 3.6% had received an 1st dose of vaccine, 36% had received and 2nd dose and 10.3% receievd an 3rd dose of vaccine , also it was evident from current finding that the highest acceptance was found in participants who were uninfected with COVID-19 with 72%.

SL NO	EFFECT OF COVID INFECTION ON VACCINATION						
1	Covid-19 infection	Yes (n=271) 27%			No (n=729) 73%		
		Vaccinated (n=136) Not vaccinated (n=135)			Vaccinated (n=580) Not vaccinated (n=149)		
		1st dose	2nd dose	3rd dose	1st dose	2nd dose	3rd dose
		10(3.6%)	98(36%)	28(10.3%)	21(2.8%)	498 (68%)	61(8.3%)
2	If yes ,When did you get infected	Before vaccination			After vaccination		
		187 (69%)			84 (31%)		

Table No.06: Effect of covid infection on vaccinatio

during the second dose might be an impact on the covid-19 vaccination, according to recommended duration of 60 days, the study reveals that 9% had received 2nd dose due to impact of lack of supply of vaccine. 3.6% had received a 2nd dose of vaccine in the above mentioned duration due to covid-19 infection because of health regulatory bodies permitted to vaccination only after 3 months, about 22% of individuals had their vaccinations in fewer than 30 days. Due of the government's emphasis on the issue, affected participants had high levels of acceptability right away when the vaccination was approved.

7. Acceptance for covid-19 vaccines V/S recommended intervals

Reasons for varied time and spacing are depleted in the Table No. 08; the shortage of the vaccine

TYPE	RRURAL (n=342)			U URBAN (n=374)		
Duration	<30 days Immediately after approval	30-60 days Within few months	>60 days Delayed	<30 days Immediately after approval	30-60 days Within few months	>60 days Delayed
1st dose (n=31)	5(16%)	6(19%)	9(29%)	2(6.4%)	3(9.6%)	6(19%)
Emigration	3(9.6%)	1(3.2%)	0(0%)	1(3.2%)	1(3.2%)	1(3.2%)
Covid-19 infection	0(0%)	0(0%)	3(9.6%)	0(0%)	0(0%)	2(6.4%)

Lack of supply of vaccine	0(0%)	0(0%)	2(6.4%)	0(0%)	0(0%)	2(6.4%)
Co morbidities	1(3.2%)	3(9.6%)	3(9.6%)	0(0.13%)	1(0.13%)	0(0.2%)
None	1(3.2%)	2(6.4%)	1(3.2%)	1(0.13%)	1(0.2%)	1(0.13%)
2nd dose (n=596)	31(5.2%)	89(15%)	164(26%)	83(14%)	48(8.0%)	181(30.2%)
Emigration	4(0.6%)	12(2%)	12(2%)	6(1.0%)	8(1.3%)	8(1.3%)
Covid-19 infection	0(0.0%)	19(3.1%)	10(1.6%)	8(1.3%)	2(0.3%)	10(1.6%)
Lack of supply of vaccine	3(0.5%)	20(3.3%)	9(1.5%)	8(1.3%)	8(1.3%)	6(1%)
Co morbidities	6(1.0%)	1(0.2%)	15(2.5%)	6(1.0%)	8(1.3%)	10(1.6%)
None	18(3.0%)	37(6.2%)	118(20%)	55(9.2%)	22(3.6%)	147(24.6%)
Booster dose (n=89)	10(11%)	12(13%)	16(18%)	6(6.7%)	19(21.3%)	26(29%)
Co morbidity	5(5.6%)	2(2.2%)	1(1.1%)	2(2.2%)	4(4.4%)	8(8.9%)
Lack of supply of vaccine	2(2.2%)	2(2.2%)	8(8.9%)	0(0%)	0(0%)	8(8.9%)
Cost	2(2.2%)	3(3.3%)	5(5.6%)	1(1.1%)	6(6.7%)	2(2.2%)
None	1(1.1%)	5(5.6%)	2(2.2%)	3(3.3%)	9(10.1%)	8(8.9%)

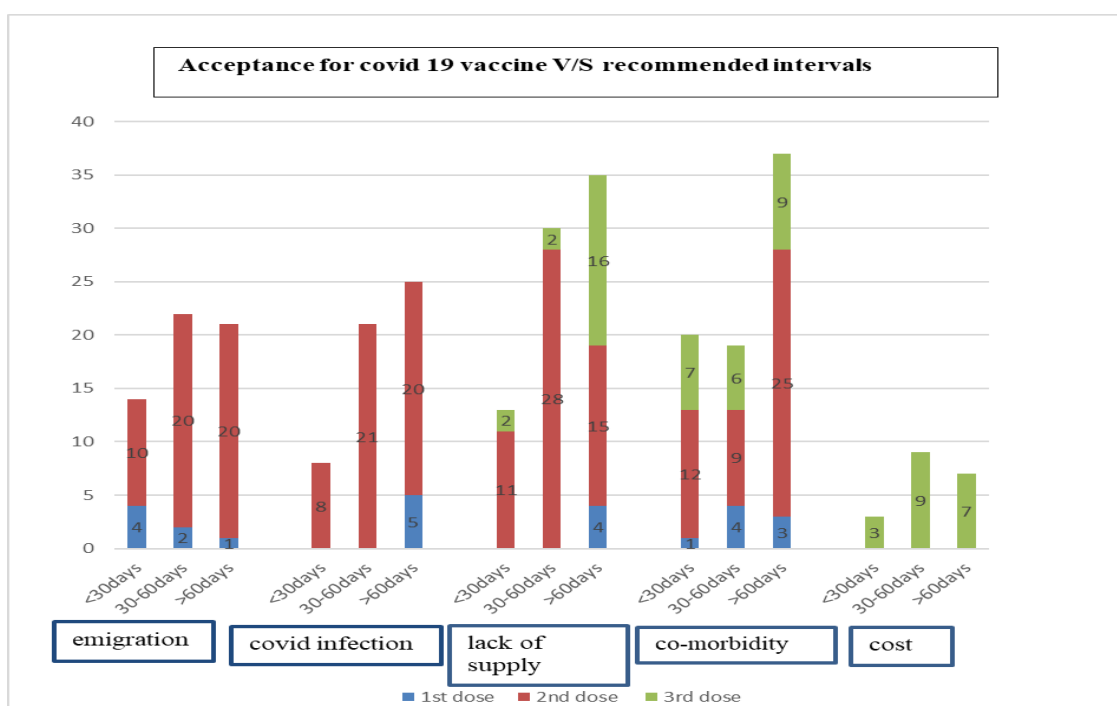**Table no. 07: Acceptance for covid-19 vaccine V/S recommended intervals**

Fig no. 05 Acceptance for covid-19 vaccine V/S recommended intervals

8. Reason behind vaccination

8.1: Risk of Infection Perception

14% of respondents were very concerned about getting infected at work, 30% were very concerned about contracting the disease outside the work environment, and 22% had an advice from relatives from family and friends.

Reason for vaccinating?	1st dose(n=31)	2nd dose(n=596)	3rd dose(n=89)
I. Advice from relatives and friends/healthcare professionals	8(26%)	118(20%)	29(33%)
II. Governments awareness campaigns	12(39%)	195(33%)	23(29%)
III. Fear of contracting the disease	6(19%)	187(31%)	19(21%)
IV. Job related exposure/mandatory instructions from employers	3(9.6%)	73(13%)	14(16%)
V. Ease of getting vaccines	2 (6.4%)	23(3.0%)	4(4.0%)

Table no. 08: Reasons behind Vaccination
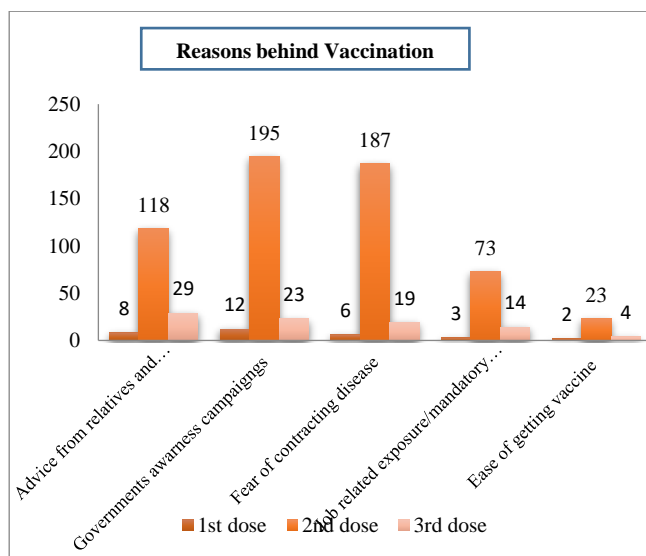
Fig no.06 Reasons behind Vaccination

9. Reason behind not vaccination

9.1: Predictors of vaccine hesitancy

The present study compares hesitant and confident respondents on demographic characteristics, co morbidities, previous vaccination refusal, and COVID-19-related experiences. Results indicate that the hesitant subgroup included higher proportion of respondents aged 41–60 years, and lower proportion aged >60years. The hesitant group was also characterized by a significant higher proportion of respondents with undergraduate levels of education, self-employment, and a "lower than average" family income (Table 2). Moreover, the hesitant group reported, more frequently, a previous vaccination refusal and absence of co morbidities (Table 3). As for COVID-19-related experiences, there was no difference between hesitant and confident groups with respect to COVID-19 diagnosis, while hesitant groups reported a lower level of perceived risk of infection and a higher proportion of income reduction due to restriction measures (Table2).

9.2 Specific Reasons for Past Refusal (booster)

The most frequently reported reasons by the 28% individuals who refused past vaccination were "the reasons were unknown" (2.4%) and "I was worried about side effects" (35.4%), followed by "lack of trust in the present vaccine" (20%) and "let the infection naturally come and go" (0.8%) (Table10). The reasons viz, "I was worried about side effects" and "lack of trust in the present vaccine" was significantly associated with COVID-19 vaccine hesitancy (Table 10); those who reported lack of information and those who reported doubts on safety were more likely to be hesitant compared to those who reported other reasons.

9.3 Afraid of short-term side-effects

The study as shown in the table no.10 estimated that close to one in five (35%) people in the survey shared that they are scared of the short-term side-effects of the booster dose. These temporary symptoms are similar to those you might notice when you get a flu shot, such as a sore arm, fever, body aches, headaches and tiredness for a day or two. While it is natural to fear these symptoms, they do not mean that you are sick. Rather, it is a signal that immune system is responding to the booster shot and building up protection against COVID-19.

9.4 Long-term side effects

The study analysed that as shown in the table no. 10, 8.4% of the respondents in the survey are

worried about the alleged long-term side effects of the vaccines. Researchers have found that there are a few rare but severe side effects from COVID-19 vaccination.

9.5 Doubts regarding booster's effectiveness

Some people in rural (19.7% of the respondents) are doubtful about the effectiveness of the booster dose. However, as per experts, the COVID-19 booster dose is quite effective against the XE variant of the virus.

19ooster dose is quite effective against the XE variant of the virus

SI No	Reasons behind not vaccination	Respondents (n=284)
1	Low risk of disease / let the infection naturally come and go	37 (13%)
2	Lack of trust in the present vaccine	56(19.7%)
3	Anxious about adverse reaction/ efficacy of vaccines	98(34.5%)
4	Fear of long term complications / injection/ side effects	24(8.4%)
5	Active / recovered from the disease	10(3.5%)
6	Economic issues	19(6.6%)
7	Social media	20(7.0%)
	Misinformation	9(3.16%)
	Generate fear	6(2.11%)
	Anti-vaccination content	5(1.7%)
8	Feels like already got immunity	6(2.1%)
9	It was not mandatory to receive vaccine	7(2.4%)
10	Unknown	7(2.4%)
	Total	284(100%)

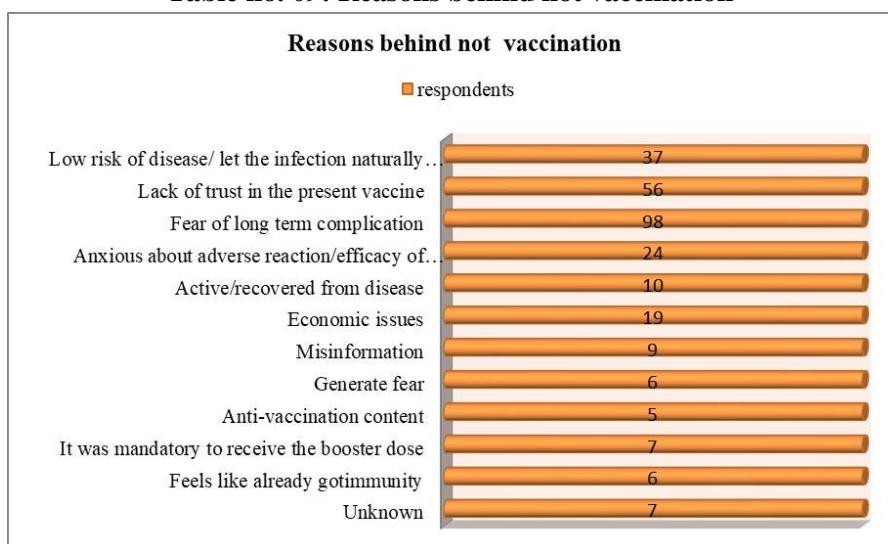**Table no. 09: Reasons behind not vaccination**

Fig no. 09 Reasons behind not vaccination

DISCUSSION: Age, comorbidity, education influenced vaccination, the present study revealed that > 60 year of age with co morbidities had more vaccinated may be due to mandatory of Covid Booster Dose (CBD) for these categories. Education was also a predictor of hesitation to receive covid-19 vaccine. Different researchers agreed that better educated individuals are more likely to accept covid-19 vaccination and low educational levels were linked to a significant level of vaccine reluctance [5]. The present study also reveals the same in which higher acceptance was found among university level and lower acceptance was among illiterates.

Domicile influenced vaccination, the challenge of vaccine hesitancy was reported to be more prevalent in rural area due to various factors compared with urban population also the largest contributors to lower vaccination rates[6]. Simultaneously was present in our study.

Acceptance, hesitancy and reason for accepting a CBD was due to advice from family, friends and HCP, many governments and organizations have implemented to take vaccination for workers in specific fields viz healthcare, transport, education, and retail, in order to minimize the spread of COVID-19. Several studies suggest that, the reasons for vaccine reluctance, participants showed vaccine hesitation due to safety concerns. The reasons for vaccine reluctance were lack of enough evidence, two doses were enough, adverse experience with prior doses of vaccine, not compulsion [7]. In the current study, participants also showed same reluctance as mentioned above. Reasons behind vaccine hesitancy causing non acceptance

When the risk from disease has markedly reduced as the epidemic is over, people worry about the risk of serious AEFI (adverse event from immunisation). Once vaccine hesitancy has been created, it is going to be tough to overcome, some of the reasons include

Confidence in first two dose, many believe that double vaccination is enough. A sense of complacency has settled in, but booster doses are very important to keep immunized it ensures enough antibodies against infecting virus.

The present study participants are also hesitant to receive the precautionary dose due to the same reason. However, the effectiveness of vaccination can go weak with time and two doses of vaccine may not provide strong protection against infection from the COVID omicron variant, and to be able to prevent hospitalization[8].

Afraid of short-term side-effects & Long-term side effects : These temporary symptoms are similar to those with a flu shot, viz., sore arm, fever, body aches, headaches and tiredness for a day or two. While it is natural to fear these symptoms, do not mean of sick. Rather, it is a signal of immune system in responding to the booster shot and building up protection against COVID-19. Researchers have found that there are a few rare but severe side effects from COVID-19 vaccination. These include thrombosis with thrombocytopenia syndrome

Serious side effects that could cause a long-term health problem are extremely unlikely following any vaccination, including COVID-19 vaccination. Millions of people have received COVID-19 vaccines, and no long-term side effects have been detected. Long-term side effects following any vaccine are extremely rare. The majority of adverse effects were mild to moderate in intensity, as supporting article says that the participants were worried about side effects. The main vaccine side effects seen in current study are swelling in site of injection, fever and muscle pain. Short term side effects showed major vaccine reluctance among participants with acceptance of 1st and 2nd dose vaccine.

Doubts regarding booster's effectiveness: A June 2022 study published in The Lancet Journal also found that booster mRNA vaccine-doses were moderately effective in preventing infection with the omicron variant for over a month after administration. In the current study, participants also showed same reluctance as mentioned above. Choice: majority of Indians they had to take the first dose out of compulsion such as for travel, etc., but will now resist taking a booster dose. The present study people are also having the same reason for not accepting the booster dose.

Social habits supporting article says that there is no evidence indicating that alcohol is poisonous when vaccinated ˙but similar finding from other studies shown a high level of hesitancy among alcoholics, [9] even the study reveals that male who

consumed alcohol had a myth of not receiving the vaccine, because they believe consumption of alcohol is forbidden and poisonous when vaccinated.

The concern in vaccination hesitancy is reflected in religiosity, a study found that religious teachings prioritize prayers over medicine, thus resulting in vaccination hesitancy among devotees [10]. This is coupled with inappropriate knowledge on vaccines, thus making accept alternative approaches to treat diseases, fearing vaccination may lead to the death of their children. The present study also revealed that reluctance in vaccine acceptance as mentioned above.

Covid infected participants had an opinion that natural infection, lead to long lasting immunity so it is not important to get the vaccines, even if any individual have had covid-19, need vaccinated which adds up protection[11]. People who already had covid-19 and do not get vaccinated after their recovery are more likely to get covid-19 again than those who got vaccinated after their recovery and if individual given with monoclonal antibodies or convalescent plasma while sick with covid-19 then no need to wait to get vaccinated[12]. The present study shows that due to past recovered from disease people were hesitant to take the vaccine.

Economy influenced vaccination due to the likely impact of covid-19 on the economy and on public spending even though covid-19 vaccination effectively financing the vaccine roll-out will , but the initially (1st and 2nd dose) government partially provided free vaccination pertaining the public. Since India is a vast country with 138 crore population and second largest world population. The booster dose was not available in government establishments for free. It was for paid vaccine in private hospital. From July 15th- Sep 30th the vaccine was made free by the government as a part of Azadi ka Amrith Mahotsav. The present study reveals that the participants had an economical issue in receiving the vaccine due to lack of free

vaccine supply at the initial stage, since participants had low economic status due to lock down majority opted for free vaccination of GOI. Having no reasons and non compulsion is the major reason which was found for non vaccination among the study participants.

CONCLUSION

The present study provided valuable information regarding covid-19 vaccine booster dose hesitancy and potential variables influencing it. The relatively high booster vaccine non-acceptance among General population could result from earlier covid-19 vaccine experience, regarding safety. Concerns about vaccine safety, vaccine efficacy, lack of trust, social habits and religiosity were possible underlying causes of vaccine hesitancy. General population was positively influenced by close friends and HCP's who value covid-19 vaccination, which may encourage the development of cross-departmental interactions to increase vaccination rates.

Pharmacist can play a major role in promoting confidence in the effectiveness and safety through effective communication, as well as treat in their ability to procure and distribute them efficiently and equitably. The reasons for not receiving the booster dose compared to other two doses it is because the participants were confidence in first doses, afraid of short term side effects and unknown or unsure about the decision. Therefore compulsion of booster dose should be made by govt for added protection regarding severity of corona virus.The present study may serve as tools for building future policies and public health actions designed to increase the covid vaccination rate.

cooperation and valuable insights, which greatly enhanced the research process.

REFERENCES

1. Achrekar GC, Batra K, Urankar Y, Batra R, Iqbal N, Choudhury SA, et al. Assessing covid-19 booster hesitancy and its correlates: An early evidence from India [Internet]. Multidisciplinary Digital Publishing Institute; 2022 [cited 2023 Nov 9]. Available from: https://www.mdpi.com/2076-393X/10/7/1048

2. Watson, Oliver J. "Global impact of the first year of COVID-19 vaccination: a mathematical modelling study". The Lancet Infectious Diseases. 23 June 2022 ;22 (9): 1293–1302

3. Vaccine efficacy, effectiveness and protection [Internet]. World Health Organization; [cited 2023 Nov 10]. Available from: https://www.who.int/news-room/feature-stories/detail/vaccine-efficacy-effectiveness-and-protection

4. Baden, L.R.; El Sahly, H.M.; Essink, B.; Kotloff, K.; Frey, S.; Novak, R.; Diemert, D.; Spect et al. Efficacy and Safety of the mRNA-1273 SARS-CoV-2 Vaccine. N. Engl. J. Med. 2020; 384: 403–16

5. Voysey, M. Single-dose administration and the influence of the timing of the booster dose on immunogenicity and efficacy of ChAdOx1 nCoV-19 (AZD1222) vaccine: a pooled analysis of four randomised trials. Lancet (London, England).2020; 397: 881–891.

6. Jackson LA, Anderson EJ, Rouphael NG. An mRNA vaccine against SARS-CoV-2—preliminary report. N Engl J Med. 2020; 383:1920–31

7. Gür E. Vaccine hesitancy—vaccine refusal. Turk Pediatr Ars. 2019; 54:1–2

8. Zhu F.-C., Li Y.-H., Guan X.-H., Hou L.-H., Wang W.-J., Li J.-X., Wu S.-P et al., tolerability, and immunogenicity of a recombinant adenovirus type-5 vectored COVID-19 vaccine: a dose-escalation, open-label, non-randomised, first-in-human trial. The Lancet. 2020;395(10240):1845–1854

9. Sharp G, Fraser A, Sawyer G, et al. The covid-19 pandemic and the menstrual cycle: Research gaps and opportunities. OSF Preprints, 8 June. 2021

10. Chagla, Z.; Pai, M. COVID-19 boosters in rich nations will delay vaccines for all. Nat. Med. 2021, 27, 1659–1660

11. Heywood AE, Macintyre CR. 2020 Elimination of COVID-19: what would it look like and is it possible? Lancet Infect. Dis. 20, 1005–1007.

12. Yang R, Penders B, Horstman K. Addressing Vaccine Hesitancy in China: A Scoping Review of Chinese Scholarship. Vaccines. 2019;8(1).