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Acceptance, attitude and experience towards COVID – 19 vaccines – A cross sectional study

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Abstract

Background: The Coronavirus disease 2019 (COVID-19) pandemic is a major threat to public health and has significant impact on all aspects of life. The accelerated development of COVID-19 vaccine is a vital development, and early data suggests that it is both, safe and efficacious. The study aims to evaluate Indians intent to be vaccinated.

Methods: This is a cross-sectional study performed in the general population of Punjab state. The associated factors of vaccination were recognized through a logistic regression analysis. The prime outcome variable was the responses related to COVID -19 vaccine acceptances among the study participants.

Results: A total of 1564 complete surveys were included in the study. The maximum members belonged to the age group of 20-30 years age group. Nearly half (45%) of the respondents gave their assurance for getting vaccinated when their turn comes. Contrary to that nearing 24% of the females and 18.1% males were in doubt to get their first shot of vaccination. Amongst the varied reasons of uncertainty, about 63 subjects (46 females and 17 males) stated their apprehension towards the test trials of the vaccine. Roughly, 163 contributors of the study are on a wait list for getting the vaccine shot. The directions from colleges and universities aided in a total of 26.5% population getting vaccinated. Many doctors have urged

25.1% females and 26.3% males to get vaccinated. **Conclusion:** The most vital factor for vaccine hesitancy is the eventuality of mild or serious adverse effects following immunization. Vaccine suitability might increase in the population once accessory information about vaccine safely and efficacy is available in the public domain, preferably from an entrusted, centralized source of information.

Keywords: Covid-19 Vaccine, Vaccine Hesitancy, Covid-19, Study

Introduction

An extensive destructive catastrophe stuck all-encompassing human kind. The mishap was entitled itself as novel coronaviruses (SARS-COV-2) COVID19. The virus has augmented dreadful circumstances in the field of health &wellbeing. The virus has now transformed virtually every country across the planet & the sum total of the deaths continues to rapidly rise. The confirmed cases of disease as of ----------has reached---------- including ---------- mortalities. In addition to the repercussions of the health &wellbeing a remarkable alteration in economy cannot be understated. It has provoked substantial cutback in manpower & a rise in unemployment universally.

The pessimistic influence fortified pharmaceutical agencies to demonstrate progress towards vaccine frantically. The procedure of vaccine evolution is a deliberately time consuming process & is subjected to scrutiny for potency efficacy &safety, peculiarly in high risk individuals viz, elderly pregnant women, people with co- morbidities, immuno deficiencies.[5]

The aspirations & advertisement that the media & populace depicted exhaustively for a vaccine establishes safeguards languishments of vaccines against COVID-19 and infectious diseases.[7]In contrary to that many lay media & websites furnishing forged information overload, have constituted towards a real infodemic. Understandably, the acceptance of the vaccine particularly in India remains uncertain by health care professionals and the population on a large scale.

In 2015, the WHO Strategic Advisory Group of experts on immunization defined vaccine irresolution as a delay in acceptance or refusal of vaccination despite the availability of vaccination services, which can vary in form and intensity based on when and where it occurs and what vaccine is involved as has been authenticated in multiple studies. [2]The most vital example is the 2003-04 northern Nigeria boycott of polio vaccination, which led to the resurrection of the disease. The rudimentary breakdown in public trust still affects polio eradication efforts in Nigeria. [1]

Despite the imposing amount of studies carried out since the virus was first specified, there are still a large number of unknowns about this disease.[7] This comprises religious beliefs, personal opinions and safety concerns due to wide – spread mythos, affiliation between vaccines and autism, brain damage and other conditions have obstructed the prosperity of COVID- 19 vaccination drive.

The objective of current study was to evaluate people's aptitude to assemble and recognize the information imparted about vaccinations. The aptitude quadrates to health literary skills entailing people's knowledge, motivation and proficiency to find, recognize and use health information which is critical amidst a pandemic. The study provides present uncovering's from likelihood with vaccine reference to vaccine acceptance from a sample of 1564 respondents in Punjab (India).

Methodology

Study design, sites and participants: A descriptive cross – sectional questionnaire study executed on the general population of Punjab. All people residing in diverse fragments inhabiting the land of Punjab were part of the

research. The study was conducted in the time span of March 2021 to July 2021 the study comprised of individuals 20 years of age or above.

Survey questionnaire and data collection: Data were cumulated with utilization of a self-administered questionnaire which was developed based on the awareness and experiences of general population in consideration with COVID 19 vaccines available in India. The questionnaire comprehended 2 parts.The demographic variables included name, age, gender and occupation. The follow up part accommodated 21 questions on COVID -19 vaccine related apprehension and clinical manifestations regionally and thoroughly across the full body. Content sustainability of the questionnaire waspre validated and assessed by experts through kappa statistics (k value = 0.86). The e-questionnaire was publicized through social media whatsapp and the obtained responses were determined, analyzed and further exemplified.

Inclusion criteria

- Individuals above 20 years of age willing to take part in the study.
- Individuals having android mobile phones.

Exclusion criteria

- Individuals reluctant to take part in the survey.
- Individuals not using Android mobile phones as a medium through which questionnaire can be conveyed.
- Pregnant/ lactating women were excluded from the study.

Ethical Approval

All the contributors were well informed with reference to Holy Grail idea of the study, and they accepted and gave consent in the foremost question included in the questionnaire. For data collection the inquisitors used online approaches (as opposed to face –to –face data collection) because of sustaining spatial distancing and conventional safe guard during the pandemic.Ethical approval was procured from the institutional ethical committee. (AIDSR/IRECC/2021/03)

Statistical Analysis

Data were analyzed using SPSS 23.0 software. Definite data related to demographic information are introduced as frequencies and fractions. The interrelation between independent variables and the primary outcomes (acceptance and intention to receive a COVID-19 vaccine) were assessed using Chi-square test as pertinent. The level of significance was set to 0.05. [1]

Addressing the mistrust among individuals with acute skepticism will be challenging. Data from this study provides a unique insight to assess the hesitancy post vaccine escapade. A total of around 1860 persons were sent the form out of which 1564 subjects cooperated in the study. [9]

Results

Comprehensive portrayal of participants: A total of 1564 complete surveys were covered in the final analysis. Of them, 42.8% were males and 57.2% females. The maximum members belonged to the age group of 20-30 years age group. Nominal amount of subjects i.e. 2.1% contributors belonged to the age group 60 years or above. Approximately, 41.8% of the participants of the study were doctors and 5.8% belonged to various other sectors of Health and were labeled as HCW. The cleaning and maintenance staff contributed nearly 1%. More or less, about 50% of the population belonged to other employment sectors.

Perceptions towards the covid vaccine: The allocation of each perception items contemplated in the study concerning with COVID-19 Vaccine are presented in Table 1 with regard to the question “Are

you waiting to get your vaccine shot" a little less than half (45%) of the respondents gave their affirmation in the matter. [8]The sageness was pretty well equally divided among the males and females (45.6% vs. 44.6%, p=0.91). Close to 441 females (49.3%) and 341 males (51%) comprising of half of the survey respondents (p=0.75) did you get the first shot of vaccine. Contrary to that nearing 24% of the females and 18.1% males were skeptical even now to get their first shot of vaccination. Further scrutinizing the former question, the reasons for vacillation over the affair were examined. Amongst the varied reasons of uncertainty, about 63 subjects (46 females and 17 males) stated their apprehension towards the test trials of the vaccine. Almost 7% females and 5.2% males expressed frightful responses towards needles and injections. A total of 9.3% participants (10.8% females and 7.2% males) are agitated towards vaccine and are abstained from safe keeping of the vaccine from the virus. Roughly, 163 contributors of the study are on a wait list for getting the vaccine shot. However, conflicting interests were put forward by participants of the survey. The proficiency of vaccine development and its productivity were challenged by 52 females (5.8%) and 42 males (6.3%). An unyielding credence of no interest in getting vaccinated was shared by 7% females and 8.8% males.

Table 1: Positive response w.r.t questions

Questions	Female		Male		Total		p value
	N	%	N	%	N	%	
Are you waiting to get your vaccine shot?	399	44.6	305	45.6	704	45	0.91
Have you gotten the first shot of vaccine?	441	49.3	341	51	782	50	0.75
If no, then are you hesitant to get it?	215	24	121	18.1	336	21.5	0.003*
If yes, then what might be the reasons?							
It is not tested extensively as heard from people around	46	5.1	17	2.5	63	4	0.002*
You are fearful of the injection	63	7	35	5.2	98	6.3	
You are fearful of the vaccine and don't trust it	97	10.8	48	7.2	145	9.3	
You are on a waiting list	100	11.2	63	9.4	163	10.4	
You dont think it will have any effect	52	5.8	42	6.3	94	6	
You simply not interested	63	7	59	8.8	122	7.8	
How did you get motivated to get the Vaccine?							
College/University instructions	283	31.6	131	19.6	414	26.5	<0.01*
Doctor	225	25.1	176	26.3	401	25.6	
Friends	152	17	137	20.5	289	18.5	
Print Media	41	4.6	46	6.9	87	5.6	
Visual Media	96	10.7	95	14.2	191	12.2	
Others	98	10.9	84	12.6	182	11.6	
How anxious were you before getting the vaccine?							
Moderate-Highly Anxious	256	28.6	166	24.8	422	27	0.38

Statistically significant

Understandably, the acceptance of the vaccine remains debatable. Envisioned chiefly as a biotechnology and organizational challenge, COVID-19 vaccine also models complex human factor challenges.[10]Unclosing the strains along the path, varied information resources along with media and social networking platform have prompted the respondents to get vaccinated. The directions from colleges and universities aided in a total of 26.5% population getting vaccinated. Many doctors have urged 25.1% females and 26.3% males to get vaccinated. Friends (18.5%), print media (5.6%), visual media (12.2%) and others (11.6%) have accorded as stated in inspiring the population to get vaccinated. Howbeit, 256 females (28.6%) and 166 males (24.8%) were perturbed highly to moderately before getting the vaccine.

Post-vaccination complications: Table 2 summarizes the results for the 12 intricacies as outcomes of getting vaccinated. [2]Under localized reactions, 12.7% females and 13.9% male's encountered redness. Pain was reported substantially higher in females as compared to the males (43.5% vs. 34.1%, p<0.01). Swelling was recorded at a higher incidence in females (128 females) in contrast to 66 males (p=0.003). Fever, a common hurdle reported in 390 subjects out of which 245 were females and 145 were males. Nearly, 15.4% female population and 9.7% male counterpart experienced chills after getting the vaccine shot. A significantly higher number of females (around 367 contributing to 41%) and 196 males (contributing to 29.3%) endured exhaustion and fatigue. The ordeal of headache was reported in 22.8% respondents (27.2% females and 16.9% males, p<0.01). The state of Nausea affirmed by 103 females and nearly half of the males than that of females (p=0.018). Further, complications related to pain in the whole body, muscles and joints were ordained by immense amount of females (319, 35.6%) rather than males (188, 28.1%). The decrease in appetite was accounted for by 8.8% respondents (p=0.002). Progressively, dizziness was described in 18.9% population (p<0.01).

Table 2: Other response w.r.t questions

Questions	Female		Male		Total		p value
	N	%	N	%	N	%	
Redness	114	12.7	93	13.9	207	13.2	0.37
Pain	389	43.5	228	34.1	617	39.5	<0.01*
Swelling	128	14.3	66	9.9	194	12.4	0.003*
Fever	245	27.4	145	21.7	390	24.9	0.001*
Chills	138	15.4	65	9.7	203	13	0.001*
Tiredness	367	41	196	29.3	563	36	<0.01*
Headache	243	27.2	113	16.9	356	22.8	<0.01*
Nausea	103	11.5	54	8.1	157	10	0.018*
Muscle pain/ body pain/joint pain	319	35.6	188	28.1	507	32.4	<0.01*
Itchy skin or rash	44	4.9	35	5.2	79	5.1	0.68
Decreased appetite	92	10.3	46	6.9	138	8.8	0.002*
Dizziness	204	22.8	92	13.8	296	18.9	<0.01*

Co-morbid conditions and vaccinations

Nearly 88 survey respondents (contributing to 5.6%), reported the presence of co morbid conditions. Amongst the 88, 6.8% females and 6.4% males expressed their angst regarding abysmal conditions arising in their body due to reaction of vaccine towards medically compromised physique.

Despite of all the impediments towards the vaccination drive, over a half (56.1%) people decided to go for the second session of vaccination.

Discussion

In the public health sector vaccination is one of the most prime advances. It is accountable for eradication of small pox and jurisdiction of infections and communicable diseases in several parts of the globe (e.g. Rubella, diphtheria, polio) consecutively in order to curb the COVID-19 pandemic scenario, development of COVID-19 vaccine has been put together as an ideal solution. [1]In India, the government started the COVID-19 vaccination on 16/1/21 bringing in hope as a climacteric unravel in the grievous storyline of the epidemic disease. Vaccine dubiety remains a striking roadblock to full population immunization even in hitherto established vaccination programs. [8] India is a country where max populations, perceptions are inclined towards misconceptions! Several Myths on India's COVID – 19 Vaccination program are doing the rounds. These myths are arising due to distorted statements, half-truths and blatant lies. [11] They are majorly preconceived notions that people hear through word of mouth or social media. Many people in country form their opinions, many generalize without fact-checking. [12] Maintaining credence in vaccination relies upon the interplay betwixt patients and providers. Moreover the governments, public health officials and supporting groups also represent incertitude against vaccine and aid to build vaccine literacy. [1,9,10] Our study aims to highlight the knowledge vis-à vis the COVID-19 vaccine and also the prognosticator of vaccine hesitancy in general population of Punjab, India. Present study found that the females' population constituted a sizeable amount of in comparison to the males. Less than the half (45%) of the population were waiting for administration of first shot of vaccination. Contrary to that Biasio LR *et al* reported more than 90% of the population willing to procure the booster dose. The measure of hesitancy was recorded slightly higher in females (24%) as compared to males (18.1%). This association is in line with the study conducted by Nzaji M K et altowards acceptability of vaccination against COVID-19 among HCW in the Democratic Republic of Congo.[1]In obedience to the report demonstrated by Al-Qerem WA*et al*the diverse reasons of incertitude were detailed as lack of conventional testing trials for the vaccination (reported by 4%), around 6.3% described apprehensive state towards the injections.[3] Approximately 19.3% stated distrust on the launched vaccination in the study documented by Al-Querem WAet al which also correlates with the prevailing study. Nearly 6% of the respondents were of an opinion that vaccination is not going to have a neutral effect. Contradistinction was devised with reference to Nzaji MK *et al* where low rate of acceptance was on account of social networks and spread of misinformation.[1] Nevertheless, in current study college/ university instructions (26.5%) doctors (25.6%), friends (18.5%), print media (5.6%), visual media (12.2%) and others 11.6% have imparted their dividend in motivating the populace towards immunization. Moderate to higher level of anxiety was reported in slight higher number of females (28.6%) with regard to males (24.8%).

An idiosyncratic feature emphasizing upon the repercussions encountered by the population was incorporated as a part of the questionnaire. The survey

reported nearly half of the subjects did underwent the first shot of vaccine. Amidst the 50% of the participants varied types of localized and generalized outcomes were evident throughout the body. The females confronted a significantly higher amount of factors in comparison to males. Pain, swelling, fever, chills, tiredness, headache, nausea, muscle and joint pain, decreased appetite and dizziness were the frequent manifestations witnessed dominantly in the females. Commiserating with Al-Querem WA *et al* around 104 participants anticipated inordinate effect of the vaccine due to comorbid conditions. [3]

One of the limitations of the study is fewer sample size. [4] More representative population can be included for wider coverage. As this is a cross-sectional study, only short term effects could be assessed. Therefore, long term effects of vaccines can be studied through longitudinal studies. In addition, the features presented in this study are self-reported through online implementations but are partly dependent on the participants' honesty and web abilities, as for similar surveys online. [4]

Conclusion

The CVID-19 pandemic prevails to inflict global depredation on lives and livelihoods, the need of the hours becomes COVID-19 vaccine exhibiting a tenable light of the hope for the future. The rapid invention of the COVID-19 vaccine might have pitched in as a factor for concern among the general population. Apprehension about the COVID-19 vaccine of its acceptance wavers depending on the socio- demographic characteristics. Vaccine acceptability may be increased once accessory information about vaccine safety and efficacy is available in public province, preferably by a credible, centralized source of information.

Collaborate endeavor of physicians, policy makers, health departments and vaccine manufacturers at the state of grass root level should incorporate instantaneous educational programs chiefly directing the community at a higher probability of vaccine hesitancy. That said, a victorious COVID-19 vaccination venture promises an alternative fate: a return sense of normalcy, crucial renovation in vaccine research and operations and the outlay of our Nation as a whole in making vaccines a public righteous in which all can allocate and acquire value.

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