

COVID-19 Vaccines: Community Myths Vs Facts

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ABSTRACT

Objective: To determine the reasons for hesitancy regarding COVID-19 vaccines.

Study Design: Cross-sectional study.

Place and Duration of Study: Combined Military Hospital, Rawalpindi Pakistan, from Feb to Jun 2021.

Methodology: After Ethical Committee approval, 100 respondents were recruited, regardless of vaccination status, and requested to respond to 27 different myths and queries circulating about COVID-19 vaccines.

Results: Mean age of participants was 36.25 ± 5.77 years, ranging from 15-80 years. Fifty-three were males and 47 females. 41% of subjects trusted the Sino-pharm vaccine, and 25% preferred Pfizer Bio N Tech, while 34% could not answer due to the lack of knowledge. 55% subjects showed concern about catching the infection from Vaccination. 54% considered vaccines unsafe for pregnant and breastfeeding women. 29% believed it unsafe for the elderly and those with comorbidities. 14% believed it could cause autism in children and infertility in adults. 62% individuals acknowledged that vaccines have no nano chips to track patients. 46% opined that vaccines were rushed through trials and had doubtful efficacy. 11% individuals thought vaccines could alter DNA, while most were aware of this false concept. 28% considered that vaccines were needless because recovery from COVID-19 was excellent, while 63% emphasised the need for Vaccination. 23% deemed the side effects of vaccines more dangerous than the disease itself. 85% individuals favoured use of mask and social distancing after getting the vaccine.

Conclusion: Strong efforts are needed to support the COVID-19 vaccine and to eliminate negative propaganda on media outlets.

Keywords: COVID-19, Misconception, Pandemic, Vaccine.

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INTRODUCTION

Since its emergence in November 2019 from Wuhan, China, the COVID-19 pandemic has culminated in health and economic catastrophe worldwide. It has currently spread to 188 countries.¹ Attempts at vaccine development were started right away, and so far, 18 vaccines have been authorised for use. Among them, two are mRNA vaccines (Pfizer BioNTech and Moderna), nine are inactivated virus vaccines (e.g. Sinopharm, Sinovac, cansino etc.), five are viral vector vaccines (e.g. Russian Gam-COVID-Vac, Oxford Astra Zeneca, Johnson and Johnson etc.), two are protein subunits vaccines (Epivac corona and RBD Dimer). Of recent, 3,875,688 deaths have been reported from around 178,965,216 COVID cases globally and 2.5 billion doses of COVID vaccines administered worldwide. Consequent to the soaring number of COVID-19 cases, myths and misconceptions about COVID-19 vaccines have also become almost rampant presently,

owing to fabrications, poor access to authentic knowledge, and angst related to healthcare.² Various surveys have revealed that only 29.4% of people are willing to get vaccinated, and those who declined were primarily women, low literacy groups, particularly those spending too much time on social media.³ Another study showed that men (42.1%) and medical students (43.3%) were willing to accept vaccine.⁴ Such fallacies can prove a hindrance to Vaccination programs. The government of Pakistan commenced its COVID-19 Vaccination program in February 2021 by vaccinating frontline health workers, followed soon by registration of other groups, initially those aged 65 years or above and then gradually expanding the program to younger age groups. According to a report by Gallup Pakistan, 49% of Pakistan's population was reluctant to receive Vaccination even when it was offered free.⁵ A similar study was performed to determine the attitudes towards COVID vaccination among adult Americans, African Americans and Hispanics 26.3%, 41.6% and 30.2% of these ethnic groups, respectively, were against Vaccination.

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The reasons to disfavour vaccination in this study were the dread of catching the infection from the vaccine itself, uncertainties regarding its effectiveness, and possible untoward effects.⁶ We hope that the results of this study will help assess and alleviate several myths related to the COVID vaccine and would create awareness among the general public, which may prove helpful in preventing further surges in this pandemic.

METHODOLOGY

This was a cross-sectional study, carried out at CMH Rawalpindi in collaboration with the Department of Medicine from February 2021 to June 2021 over five months. Study was approved by the Ethical Committee of CMH Rawalpindi (IRB/ERC Ref No. 173/06/2021). After informed consent, 100 study participants were selected through non-probability consecutive sampling technique. Confidentiality of the study participants was maintained.

Inclusion Criteria: All the individuals of either gender, age >15 years and irrespective of being vaccinated were included in the study.

Exclusion Criteria: We excluded pregnant ladies and those ladies who were trying to conceive.

Study participants were interviewed and invited to fill out the questionnaire. Their age, gender, and qualification were also documented.

Statistical Package for Social Sciences (SPSS) version 23.0 was used for the data analysis. Quantitative variables were summarized as mean ± SD and qualitative variables were summarized as frequency and percentages.

RESULTS

A total of 100 subjects were enrolled in this study. The mean age was 36.25 ± 5.77 years, ranging from 15-80 years. 53% study participants were males, and 47% were females, 4% respondents were educated till middle/primary level, 16% had passed matriculation, 20% had completed their intermediate/HSSC, 44% respondents had completed their bachelor's degree, and only 16% had professional/honours degrees.

When enquired about which age group needs to be vaccinated first, 62% individuals answered for the age group 65 years and above. 41%, i.e. maximum subjects, expressed confidence in the efficacy of the Sino pharm vaccine, followed by Pfizer Bio N Tech (25%), while 21% of the people were unable to answer it due to lack of knowledge (Figure). More than half of the subjects (55%) showed concern about getting infected with the COVID-19 virus due to the vaccine itself. In

our study, 54% people believed that COVID vaccines are not safe for pregnant and breastfeeding women, while only 29% subjects considered it unsafe for older adults and those with comorbidities.

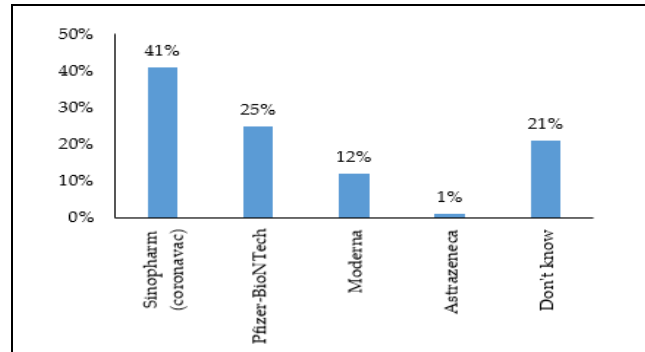


Figure: COVID-19 vaccines.

A small percentage of our subjects believed that COVID vaccines could cause autism in children (14%) and infertility among males/females (10%). 62% individuals were well aware that vaccines do not contain any Nanochips to track patients. 46% the study participants thought vaccine trials were rushed, skipping animal experiments. In our study, only a few individuals (11%) believed that vaccines could alter DNA/genes, while the majority were aware of this false concept. 28% respondents considered that vaccines were not needed as the recovery rate from COVID-19 infection was very high, while the remaining 63% negated this opinion and emphasized the need for Vaccination. A few (23%) deemed the side effects of vaccines to be more dangerous than the disease itself. A very positive response was expressed by 85% individuals that we should continue practising protective measures like wearing masks and social distancing even after getting vaccinated, as there is still a chance of transmitting the virus (Table).

DISCUSSION

COVID-19 has already caused tremendous damage to the economics, social environments and beauty of this world, and one after the other, and waves are proving deadlier than previous. The development of vaccines and mass vaccinations gives us hope of returning to a COVID free, beautiful and lively world. In our study, we tried to explore and clarify these myths with hopes that the study population would, in the long run, help spread awareness and discard wrong concepts.

The response to the issue of vaccine safety in older adults in our study was comparable to another

Table: Frequency of questionnaire.

Myths	Yes	No	Don't Know
I can get Infected with covid-19 Virus after getting Vaccine.	55	32	13
Vaccine would give me Life-Long Immunity.	17	61	22
I should not get the Vaccine if I have had Allergic Reaction to any Vaccine Medicine in the past.	56	30	14
Vaccines do not work against the Variants of Virus.	45	27	28
I cannot transmit the Virus if I am Vaccinated.	40	40	20
Vaccine is not Safe for Elderly People or People with Co-Morbidities (Diabetes, HTN IHD, TB, Asthma, Hepatitis).	29	47	24
Pregnant and Breastfeeding Women should not get the Vaccine.	54	24	22
If I am Immunocompromised, I should not get the Vaccine.	40	27	33
I should stop following Protective Measures (wearing mask, social distancing) after receiving Vaccine.	11	85	4
Vaccines cause Autism in Children.	14	40	46
Vaccines cause Impotency in Male.	9	53	38
Vaccines affect Women's Fertility.	11	49	40
The Safety cannot be Trusted as the Developers have Rushed Vaccine Trials and have skipped Animals Trials.	46	34	20
I should stop Taking my Regular Medicines before getting Vaccine.	8	82	10
I do not need Vaccine if I had COVID in the Past.	24	66	10
Vaccine would benefit if I have Active COVID.	28	52	20
Covid-19 Vaccines can Alter my DNA.	11	58	31
Vaccines can Weaken my Immune Response.	16	59	25
It is not necessary to get both doses of COVID-19 Vaccine as Single Dose is enough to Build up Immunity against the Corona Virus.	16	71	13
Vaccines contain Microchips which can Track Patients.	18	62	20
Side effects of Vaccines are more Dangerous than the Disease itself.	23	61	16
Vaccine is not needed as the recovery rate from COVID-19 Infection is High.	28	63	9
Natural Immunity is better than Vaccine Acquired Immunity.	60	29	11
The Side Effects of COVID-19 Vaccines Outweigh their Benefits.	26	54	20
COVID Virus would have already Mutated by the Time Vaccines become Easily available to Public.	55	24	21

study by Soiz *et al*, where prioritizing vaccination in older adults with comorbid illnesses was agreed upon owing to the well-known aftermath of the pandemic in this vulnerable group.⁷ Our study population (since has been exposed to Sinopharm mostly so far) expressed trust in the Sinopharm vaccine. In contrast, a study conducted by MEO *et al*, to compare Pfizer-BioNTech and Moderna vaccines showed that both were considered almost equally effective against the COVID-19 virus with mild untoward effects and no report of any severe reaction so far.⁸ Our study showed that most people do not consider the vaccine to be safe for pregnant and breastfeeding women, although a study carried out by Stafford *et al*, stated that pregnant women are prone to develop severe COVID disease. Therefore, the vaccine should be offered after informing them about the increased disease risk in pregnancy.⁹ Most of the trials did not include subjects who were either pregnant, breastfeeding or planning pregnancy. Few studies also revealed that breast-feeding mothers who were vaccinated with the mRNA COVID vaccine were found to have increased antibody titers in breast milk

which eventually prevented COVID infection in breastfed infants.¹⁰

A significant obstacle to public vaccination was the fear of catching COVID infection after Vaccination. A study conducted by Polack *et al*, has proved it to be a wrong belief by comparing results of injecting two randomly selected groups with BNT16202 (2 doses 21 days apart) and placebo, and it was found that only eight among the first group and 162 among the second group developed COVID-19.¹¹ As far as the myth of the COVID vaccine as a cause of autism is concerned, some studies prove otherwise. A study by Taylor *et al*, (precisely focused on MMR) showed that autism could not be caused or aggravated by vaccination.¹²

Few of our subjects expressed concerns about infertility caused by the COVID vaccine. Two studies carried out by Safari *et al*,^{13,14} have shown that COVID-19 vaccines do not affect either male or female fertility as evidenced by equal pregnancy rates before and after vaccination and unchanged semen parameters (like sperm count or production). Infection, however, does

affect. The majority of our population agreed with the myth that developers rushed vaccine trials and have skipped animal trials, which was in accordance with an online cross-sectional study carried out in Sindh by Abbas *et al*,¹⁵ in which 59% of the population expressed safety doubts about the vaccine and 59.7% were concerned about vaccine side effects. However, the same study also revealed that most people did not even know about vaccines in the country. Another study by Troiani *et al*,¹⁶ revealed a relatively reasonable COVID-19 vaccine acceptance (86.1%). It stated that the main reason for resistance to Vaccination was the belief that very speedy vaccine development renders it unsafe and that the virus itself is harmless, but the vaccine may prove deadly. This was also one of the reasons behind vaccine reluctance in our study, where people believed that spontaneous recovery from COVID-19 infection rules out the need for Vaccination. Some respondents in our study were more fearful of the side effects of vaccines rather than the complications of the disease, as was also seen in a study told by Sallam *et al*. Their studied population also felt that vaccine is particularly bad for females.¹⁷ Very few of our subjects believed the fallacy of the presence of nano chips in the vaccine or that the virus is not real and just a conspiracy.^{18,19} Few of these doubts were also attempted to be cleared by a study conducted at Rawalpindi medical college,²⁰ which states that COVID vaccines do not alter DNA and we should not stop wearing a mask after receiving the vaccine.

CONCLUSION

Strong efforts are needed to support the COVID-19 vaccine and to eliminate negative propaganda on media outlets.

Conflict of Interest: None.

Authors' Contribution

SWA: Basic concept, data collection, SFZ: Introduction, SN: Discussion, AF:, AR: Data collection, MUS: Material methods.

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