

Covid-19 Vaccination Hesitancy: A Review

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Abstract:- Corona Virus Disease 2019 (COVID-19) is caused by the novel coronavirus (SARS-CoV-2). It affects mainly the respiratory system and hampers the functioning of the lungs and other vital organs. This led to significant morbidity and mortality. During the initial phase of the COVID-19 pandemic, there was no substantial clinically approved line of treatment available for COVID-19 disease throughout the world. To combat the rapid transmission of the virus in humans; the basic measure adopted like the practice of social distancing, wearing face masks, frequent hand washing, using sanitizers, avoiding crowded places and isolation of COVID positive patients becomes popular all over the world. Thus, lockdown measures were imposed to break the chain of virus transmission by the government of various countries. But to which extent the lockdown can be imposed as it is not a permanent solution to fight against COVID-19. In the past, we have observed that vaccination plays an important role in the prevention and eradication of many serious communicable diseases. Vaccination reduces the risk of complication and mortality in case of further infection. Mass-scale vaccination creates herd immunity in the population. Presently, there are many COVID-19 vaccines available across the world. As we know, the third wave of COVID-19 is about to hit our country, India. The Government is deliberately making an effort by mass-scale immunization campaigns for every individual, even at the rural level. The hesitancy in vaccine among individual is affected by a combination of few factors involving role of media and communication, religious beliefs, trust, role of health professionals and economical. People in the community are still reluctant/resistant or hesitant in accepting COVID-19 vaccination that affects herd immunity & likewise, we cannot fight against this raging pandemic. Thus, this review emphasizes the COVID-19 vaccination hesitancy, assesses its possible factors and various strategies to enhance acceptance of vaccination in the community.

Keywords:- COVID-19, Vaccine Hesitancy, Vaccination Hesitancy, Vaccination Acceptance, Vaccination Refusal, Vaccination Uptake

I. INTRODUCTION

COronaVIRUS Disease 2019 (COVID-19) is caused by the novel coronavirus (SARS-CoV-2). This disease was emerged first from Hubei Province of China in December 2019. This viral disease is believed to be acquired from a zoonotic source and in humans, it transmits through air droplets of sneezing, coughing, and close contacts. It affects mainly the respiratory system and hampers the functioning

of the lungs and other vital organs. This led to significant morbidity and mortality.^{2,3}

This disease was highly communicable in nature and spreading very fast from one country to other and posing a global health threat. The World Health Organization (WHO) has officially announced COVID-19 as a pandemic caused by SARS-CoV-2 on 11th March 2020.^{4,5} COVID-19 has infected more than 203 million people, with more than 3 Lakhs deaths globally.⁶

During the initial phase of the COVID-19 pandemic, there was no substantial clinically approved line of treatment was available for COVID-19 disease throughout the world.⁵

To combat the rapid transmission of the virus in humans; the basic measure adopted like the practice of social distancing, wearing face masks, frequent hand washing, using sanitizers, avoiding crowded places and isolation of COVID positive patients becomes popular all over the world. Even after adopting these practices, most of the countries found significant outbreaks of COVID-19.⁷ Thus, lockdown measures were imposed to break the chain of virus transmission by the government of various countries.⁸

Due to Lockdown, all the economic and social activities were halted which affected the country's sectorial growth and resulted in physical and mental agony of the population too. Hence, it becomes a key question to which extent the lockdown can be imposed as it is not a permanent solution to fight against COVID-19.^{9,10}

In the past, we have observed that vaccination plays an important role in the prevention and eradication of many serious communicable diseases. The main purpose of a vaccine is to strengthen the immune system by forming antibodies against the antigen for which the person has got vaccinated. Vaccination reduces the risk of complication and mortality in case of further infection.¹¹

Vaccines are considered to be a milestone in the field of public health achievements as it markedly reduces the burden of infectious diseases globally. Mass-scale vaccination creates herd immunity in the population. By increasing vaccination coverage, herd immunity can be achieved for the eradication of infectious diseases. Eradication of smallpox and elimination of diseases like poliomyelitis, tetanus, diphtheria, and measles are well-known achievements of mass-scale vaccination.^{10,11}

Presently, there are many COVID-19 vaccines available across the world namely, Pfizer–BioNTech, Moderna, Johnson & Johnson, Oxford–AstraZeneca, Covishield, Covaxin, Sputnik V, Sinopharm, Sinovac.^{12, 13} Vaccination drive all over the world have been started to bring herd immunity among individuals and communities.

As we know, the third wave of COVID-19 is about to hit our country, India. The Government is deliberately making an effort by mass-scale immunization campaigns for every individual, even at the rural level. But some people in the community are reluctant/resistant or hesitant in accepting COVID-19 vaccination that affects herd immunity & likewise, we cannot fight against this raging pandemic.¹⁰

Vaccine hesitancy is among the top ten global health threats identified by the World Health Organization in 2019.¹⁴ Based on the Strategic Advisory Group of Experts on Immunization (SAGE), vaccine hesitancy term is described as: “delay in acceptance or refusal of vaccination despite the availability of vaccination services”¹⁵ The hesitancy in vaccine among individual is affected by a combination of few factors involving role of media and communication, religious beliefs, trust, role of health professionals and economical.¹⁶

Thus, this review emphasizes the COVID-19 vaccination hesitancy, assesses its possible factors and various strategies to enhance acceptance of vaccination in the community.

II. METHODS

Regarding the original articles, COVID-19 vaccination hesitancy and/or to enhance vaccine uptake, a search was conducted in the electronic databases PubMed, Google Scholar with free Full Text, for the period of last 10 years (vaccination hesitancy). The search strategy was built using a combination of keywords (principal terms and synonyms) for four concepts: (1) COVID-19 (2) vaccination (3) hesitancy (4) refusal. Keywords were searched in “titles, keywords and abstracts”. In each database, the use of free text terms was combined with controlled language by using the appropriate thesaurus (for instance, Medical Subject Heading terms in PubMed). In addition, further studies were retrieved from reference listing of relevant articles. Abstracts of all identified papers were reviewed.

Inclusion criteria:

- original articles, reviews or meta-analysis of interventions to address COVID-19 vaccination hesitancy (from past 2 years)
- to improve vaccination acceptance
- reviewing interventions targeting parents and/or health-care providers
- published in books, journals or WHO website from the past 10 years (10 years means Vaccination hesitancy only)
- Written in English.

Exclusion criteria:

- guidelines, letters or editorials
- those which are not full text articles

III. REVIEW OF LITERATURE

Vaccination Hesitancy

Eve Dube et al (2013) studied all the factors like political, socio-cultural, emotional, and economic by which the individual was related at the time of vaccination. In this way, they illustrated in the model that the factors for vaccine acceptance was at the individual level. They also suggested vaccine hesitancy at the population level that would include the education and awareness programs to the public and health providers and also transparency in policy-making and decisions regarding vaccination programs. They also found some more research were needed to clarify all the dilemma of health professionals regarding safety and efficacy of the vaccination.

Vaccination hesitancy model

MacDonald N E et al (2015)¹⁷ suggested that in spite of availability of vaccination services, if anyone delays or refuse to take vaccine then it is known as vaccination hesitancy. Sometimes this hesitancy was specific and varying across time place and vaccines. In vaccination drive programs, the vaccine hesitancy was influenced by the demand factors like low or high vaccine demand. This term was more commonly used as ‘vaccine hesitancy’ rather than ‘vaccination hesitancy’ mainly by the working group, although in broader range this term was used in immunization concerns. Finally, they concluded that the determinant of vaccine hesitancy is directly related to the behavioural decision to accept, delay or reject to take vaccine.

Religious beliefs

GulDenizSalali et al (2020)¹⁸ assessed in a cross-cultural study that the belief regarding origin of coronavirus is directly related with COVID-19 vaccine hesitancy. They also collected information about willingness of participant to vaccinate for a potential Covid-19 vaccine and there thought about the origin of novel corona virus, several behavioural and demographic predictors. They collected this information to know about factors influenced from vaccination and origin beliefs. They analysed that 54% of participants believed in natural origin of corona virus and this type of belief increases the acceptance of vaccine in population. They also found that 31% of participants were not very sure to get them vaccinated while 3% were rejected for vaccination. Finally, they concluded that broader awareness and knowledge giving programming population about the origin of virus might increase the acceptance of vaccine.

The Role of Media and Communication

Wilson SL, Wiysonge et al(2020)¹⁹ assessed the threat posed by anti-vaccination efforts on social media was critically important with the forth coming need for worldwide COVID-19 vaccination programs. They evaluated the effect of social media on vaccine hesitancy globally and online foreign disinformation campaigns on

vaccination rates and attitudes towards vaccine safety. They found the use of social media to organise offline action to be highly predictive of the belief that vaccinations were unsafe, with such beliefs mounting as more organisation occurs on social media. In addition, the prevalence of foreign disinformation was highly statistically and substantively significant in predicting vaccination coverage over time. They concluded that there was a significant relationship between organisation on social media and public doubts of vaccine safety.

William Douglas Evans and Jeff French (2020)²⁰ studied theory, evidence, and practice to develop a vaccine demand creation strategy that had wide applicability. They focused on key elements including supply side confidence, vaccine brand promotion strategy, service marketing as it relates to vaccine distribution, and competition strategy. They presented evidence that these strategies could make a significant contribution to overcoming COVID-19 hesitancy in a high supply scenario. They recommended about factors that need to be considered in relation to vaccine delivery services and systems that might reduce uptake or result in the creation of more vaccine hesitancy. They suggested that there was a need for well researched and tested demand creation strategies that integrate with brand strategy, supply side, and service delivery.

Role of health professionals

Biswas N et al (2021)²¹ examined the significant proportion of those who were unsure or undecided about COVID-19 vaccines end up declining the vaccine at a different period, the rates of hesitancy would be much higher than our estimates in this review. They included review based on age, gender, income, education, and professional roles. They did not find vaccine hesitancy for any particular group. They suggested that quantitative estimates such as the weighted estimates of vaccination hesitancy was accounted for sample sizes and study variations.

Trust

Dube E et al (2013)¹⁶ emphasizes on the “reliance on trust was especially impressive, because mothers perceived that ‘diseases are not around’ or ‘not so bad’ and they had little experience with VPD.” After extensive field work in Brighton, UK and several countries in West Africa, they concluded that the concept of trust was rarely evoked by parents when describing their relationships with health professionals. They provided a reliable definition of trust as “a complex relational practice happening within particular socio-political context.” After in-depth analysis of focus group data on trust and MMR vaccination, they concluded that trust is not only based on knowledge, but also on a “leap of faith” that could only be possible because parents have a relationship with health professionals based on familiarity.

Strategy based evidence to improve COVID-19 Vaccination hesitancy

Rutten L J F et al (2020)²² evaluated public attitudes in the United States toward the COVID-19 vaccine reveals substantial vaccine hesitancy. They found efforts at the

policy and community level to ensure population access to COVID-19 vaccination, a strong health care system response is critical to address vaccine hesitancy. They also emphasized on the evidence base in social, behavioural, communication, and implementation science. They suggested that encouragement of use of interpersonal, individual-level, and organizational interventions within clinical organizations to address this critical gap and improve population adoption of COVID-19 vaccination.

IV. CONCLUSION

A sizeable number of study reports regarding hesitancy of COVID-19 vaccine in different countries shows a markable variation. The average acceptance rate for COVID-19 vaccine was low than expectation which posed a serious problem for efforts to control the COVID-19 pandemic. In Middle East, East and South East Asia, there was low COVID-19 acceptance rate whereas high acceptance rates were found in Eastern Europe and Russia. The widespread prevalence of COVID-19 vaccine hesitancy mandates collaborative efforts of governments, health policy makers, and media sources, including social media companies.

Future directions regarding COVID-19 vaccination hesitancy are education and policy-based interventions should be implemented to ensure vaccination in the population with the available COVID-19 vaccines. More studies and research are recommended to build COVID-19 vaccination trust among the general public, via the spread of timely and clear messages through trusted channels advocating the safety and efficacy of currently available COVID-19 vaccines.

The above listed factors show that based on different research and data inferred that vaccine hesitancy among different countries/ communities/ regions have been there, which still pertains the vaccination issue against COVID-19.

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