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Navigating the Complex Landscape of COVID-19 Vaccine Hesitancy in Asia: Identifying Key Determinants and Strategies for Improvement

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Abstract

Most LMICs have been slow to receive and distribute vaccines, which are much more available in high-income countries, prompting critiques of global vaccine inequity, which were exacerbated with the distribution of so-called booster shots in high-income countries in the autumn of 2021. Access issues, coupled with vaccine hesitancy, can have catastrophic effects. Vaccination against the novel coronavirus is one of the most effective strategies for combating the global Coronavirus disease (COVID-19) pandemic. However, vaccine hesitancy has emerged as a major obstacle in several regions of the world, including Asia. The COVID-19 pandemic has necessitated the rapid development and distribution of vaccines worldwide. However, vaccine hesitancy, particularly in Asia, poses a significant challenge to achieving herd immunity and controlling the pandemic. This study aims to identify the key determinants of COVID-19 vaccine hesitancy in Asian populations and develop targeted strategies to improve vaccination uptake. A comprehensive review of literature from 2019 to 2020 was conducted, focusing on sociocultural, political, and healthcare system factors that contribute to vaccine hesitancy in the region. Findings reveal that cultural and religious beliefs, misinformation and distrust in government and healthcare systems, and logistical and accessibility issues significantly impact vaccine uptake. To address these challenges, the study proposes strategies such as engaging with community leaders, improving communication, building public trust, and addressing logistical and accessibility barriers. By comprehensively understanding and addressing the determinants of COVID-19 vaccine hesitancy in Asia, the public health community can navigate the complex landscape and facilitate higher vaccination rates, ultimately contributing to the global control of the COVID-19 pandemic.

Keywords: *COVID-19 vaccine, Vaccine hesitancy, Determinants, Strategies for improvement, Asia*

1.0 Introduction

Navigating the complex landscape of COVID-19 vaccine hesitancy in Asia involves understanding the diverse factors contributing to reluctance in different communities. A study by Lazarus et al. (2020) highlights that vaccine hesitancy is a global issue, with Asia demonstrating a wide range of acceptance rates across different countries. The researchers found that a combination of sociocultural, political, and healthcare system factors contribute to the varying levels of hesitancy, emphasizing the need for a multifaceted approach to address these challenges (Lazarus et al., 2020). Cultural and religious beliefs play a significant role in shaping attitudes towards vaccines in Asian populations. Misinformation and distrust in government and healthcare systems are also key determinants of vaccine hesitancy in Asia. Chou et al. (2020) identified that conspiracy theories, fake news, and conflicting information circulating on social media platforms have generated confusion and skepticism. Building public trust in government and healthcare institutions, as well as improving communication strategies, is vital to combat misinformation and increase vaccine confidence (Chou et al., 2020). Addressing logistical and accessibility issues has significantly impacted vaccine uptake in Asia. Harapan et al. (2020) noted that inadequate healthcare infrastructure, limited vaccine supply, and difficulties in reaching remote areas are common barriers to immunization. Implementing targeted strategies to improve healthcare access, such as mobile vaccination clinics, partnering with local organizations, and utilizing technology for vaccine tracking, can help mitigate these challenges and facilitate higher vaccination rates (Harapan et al., 2020).

Timing is everything when it comes to vaccine acceptance or hesitancy, and the mutable nature of vaccine hesitancy calls for new modes of analysis to characterize not only the temporal features of hesitancy but also the spatial (e.g., regional) features and the many behavioral manifestations and their effects on vaccine uptake (Pugliese-Garcia et al., 2018). Such real-time data also allow investigation into contextual events that can help us understand the drivers of hesitancy. Vaccine acceptance can be increased, but responsiveness to emerging concerns is key (Pugliese-Garcia *et al.*, 2018; Larson, Gakidou & Murray, 2022). As vaccine hesitancy became increasingly recognized as a global challenge and global immunization rates plateaued and even started to decline in some areas, the WHO Strategic Advisory Group of Experts (SAGE) on Immunization noted with concern the impact of reluctance to accept immunization on the uptake of vaccines reported from both developed and developing countries.

Effective and comprehensive vaccination strategies require an up-to-date understanding of the perceptions that drive COVID-19 vaccine hesitancy and the common characteristics of people who are less likely to accept a vaccine or vaccination requirement, or mandate (Lazarus *et al.*, 2022). COVID-19 vaccine hesitancy literature focuses on four interrelated subjects: vaccine safety, vaccine efficacy, and perception of risk and mistrust of governments and health and scientific institutions (WHO, 2022; Ergün *et al.*, 2022). Lazarus *et al.* (2022) opine that individually-reported beliefs regarding COVID-19 vaccine safety arise from real or hypothetical knowledge of adverse events in addition to disinformation or misinformation, which are often hyperbolic, proliferate on social media, and are attributed to a well-known sub-set of political and religious leaders and self-identified medical professionals.

Given the overall burden of COVID-19 and the barriers to vaccination, efforts to mitigate vaccine hesitancy are reflected in the World Health Organization (WHO) priority of increasing vaccine acceptance. To address this initiative, there must be comprehensive understanding of the factors associated with COVID-19 vaccine hesitancy and of those groups who may be more likely to decline vaccination (WHO, 2022). This is challenging given the vast number of scientific articles investigating factors associated with COVID-19 vaccine hesitancy in different global populations over the last two years. As individual articles are difficult to report succinctly, many have been summarized in reviews. However, not all studies have used a specific theoretical framework to present their findings, which has made it difficult to classify and address factors of vaccine hesitation. It is therefore timely to synthesize all evidence about factors associated with vaccine hesitancy that we have to date.

Some vaccine hesitancy is tied to a specific vaccine, such as hesitancy based on the now-debunked yet persistent belief that the MMR vaccine could cause autism or the possible link between hepatitis B vaccination and multiple sclerosis, which caused anxiety in France and has also been repeatedly disproved (Zak, 2021). Vaccine hesitancy can also be triggered by anxiety about the administration of vaccines, including fear of needles, or by concern about possible side effects, including those associated with the new Covid-19 vaccines. Other concerns are related to vaccine ingredients, such as thimerosal, which is used as a preservative, or adjuvants that boost the effectiveness of vaccines. Parents may contest the childhood immunization schedule, claiming "too many, too soon," or express concern that the schedule overwhelms the child's immune system; some parents may seek bespoke schedules for their children, which could make them more vulnerable to infectious diseases (Troiano & Nardi, 2021

A survey conducted in nine LMICs in Asia demonstrated an inverse association between vaccine hesitancy and perceptions of effectiveness (Lazarus *et al.*, 2022). Misperception of the severity of COVID-19 infections and an individual's risk of contracting SARS-CoV-2 are also associated with vaccine hesitancy, which is consistent with the general literature on vaccines and risk perception. When coupled with public mistrust towards health care workers (HCWs), scientific institutions, and/or health authorities, these drivers can potentially halt progress on vaccine uptake in settings where vaccines are available (Lazarus *et al.*, 2022). Understanding the characteristics and degrees of hesitancy among those who believe misinformation on safety, efficacy, and risk can help health authorities, community leaders, and other trusted sources to identify priority groups for targeted information about the safety and efficacy of available COVID-19 vaccines, which all reduce the risks of severe illness and mortality

1.1 Statement of the Problem

The COVID-19 pandemic has presented an unprecedented global challenge, necessitating rapid vaccine development and widespread immunization to control the spread of the virus (Lurie et al., 2020). While multiple vaccines have been developed, vaccine hesitancy, particularly in Asia, poses a significant barrier to achieving herd immunity and mitigating the pandemic's impacts. Navigating the complex landscape of COVID-19 vaccine hesitancy in Asia requires a thorough understanding of the key determinants contributing to reluctance among diverse communities (Lazarus et al., 2020). Various sociocultural, political, and healthcare system factors contribute to vaccine hesitancy in Asian populations, resulting in wide-ranging acceptance rates across different countries (Lazarus et al., 2020). Cultural and religious beliefs, misinformation and distrust in government and healthcare systems, and logistical and accessibility issues significantly impact vaccine uptake (Wong et al., 2019; Chou et al., 2020; Harapan et al., 2020). Addressing these

determinants is critical to ensuring the success of vaccination campaigns and the eventual control of the COVID-19 pandemic.

To effectively address the issue of COVID-19 vaccine hesitancy in Asia, it is crucial to develop and implement targeted strategies that consider the unique challenges and barriers within each country and community (Harapan et al., 2020). Engaging with community leaders, improving communication, building public trust, and addressing logistical and accessibility issues are essential for facilitating higher vaccination rates and fostering a more positive attitude towards COVID-19 vaccines (Wong et al., 2019; Chou et al., 2020). By identifying key determinants and implementing appropriate strategies for improvement, the public health community can navigate the complex landscape of COVID-19 vaccine hesitancy in Asia.

2.1 Empirical Review

Erchick, Gupta, Blunt, Bansal, Sauer, Gerste and Limaye (2022) sought to understand determinants of vaccine hesitancy and acceptance in India by conducting a qualitative study of government officials and civil society stakeholders. The conducted in-depth phone interviews using a structured guide of open-ended questions with 21 participants from international and national non-governmental organizations, professional associations, and universities, and state and national government–six national-level stakeholders in New Delhi, six state-level stakeholders in Uttar Pradesh, six in Kerala, and three in Gujarat–from July 2020 to October 2020. The study identified multiple drivers and complex ways they influence vaccine beliefs, attitudes, and behaviors from the perspective of government officials and civil society stakeholders involved in vaccine campaigns.

Leigh, Moss, White, Picchio, Rabin, Ratzan and Lazarus (2022) examined factors affecting COVID-19 vaccine hesitancy among healthcare providers in 23 countries. In a secondary analysis based on a cross-sectional, structured survey, the authors aimed to assess the associations between self-reported vaccine hesitancy and a number of sociodemographic and COVID-19 vaccine perception factors using data from 3,295 healthcare providers (physicians, nurses, community health workers, other healthcare providers) in 23 countries. Based on the study findings, 15.0% of the participants reported vaccine hesitancy, of whom 4.0% would outright refuse to accept a COVID-19 vaccine; physicians were the least hesitant and Vaccine hesitancy was more likely to occur among those with less than the median income and, to a lesser degree, younger age. The study also indicated that safety and risk concerns and lack of trust that vaccines would be equitably distributed were strongly associated with hesitancy, less so were concerns about the efficacy of COVID-19 vaccines.

In Switzerland, Veys-Takeuchi, Gonseth Nusslé, Estoppey, Zuppinger, Dupraz, Pasquier and D'Acremont (2022) assessed the determinants of COVID-19 Vaccine Hesitancy during the Pandemic by adopting a cross-sectional survey in the canton of Vaud. The study was conducted in February 2021, included 1,189 randomly selected inhabitants of the canton of Vaud, Switzerland. Online questionnaires investigated determinants of the intention to vaccinate; previously validated scores (Cronbach's alphas >0.70) were applied to our data for inclusion in the ordinal logistic regression model. Based on the findings, individuals were more likely to vaccinate if they were 40 years or older, wealthy, reported a high educational attainment, or reported comorbidities. Doubts regarding vaccine safety and efficacy, mistrust in authorities and a propensity for natural immunity were identified as the main local hindrances to the COVID-19 vaccination. The study concluded that outreach to people at risk of severe COVID-19 is

particularly relevant in the pandemic context to help mitigate vaccine hesitancy in the canton of Vaud, and should take into consideration the level of education and further investigation is needed to better understand reasons for mistrust in authorities.

3.0 Methodology

This was a literature based study in which Scopus, Web of Science, Asian Index Medicus, and OVID Medline for studies published from January, 2020, to November, 2022, examining acceptance or hesitancy towards the COVID-19 vaccine were studied. Study characteristics and reasons for COVID-19 vaccine acceptance were extracted from the included articles.

4.0 Findings and Discussion

From the multiple studies reviewed, it is evident that vaccine hesitancy is a highly context-specific problem among Asian countries. Most of these studies have found that these factors included contextual influences (such as social norms, religious beliefs, economic or political factors, trust in government and providers), individual and group influences (personal perception of the vaccine, the opinions of family and peers), and issues directly related to the vaccine (such as vaccine safety and ingredients). As a result, although many behavioral determinants and barriers to different vaccinations have been identified, few existing interventions have been explicitly designed to address vaccine hesitancy, and even fewer studies have quantified the effectiveness of such interventions in terms of increasing the knowledge and improving the attitude or behavior.

Most of the reviewed papers have shown that important individual-level determinants of vaccine hesitancy includes low awareness of the benefits of vaccination, safety concerns, especially related to mild adverse events following immunization, and mistrust in government and health service quality. Contextual-level factors included communications, the media environment, and social media, which serves as a major conduit of misinformation and driver of hesitancy, as well as sociodemographic factors specific drivers varied widely by income, education, urban/rural setting, and across religious and cultural groups. Among vaccine/vaccination-level issues, vaccine program design and delivery and the role of health care professionals emerged as the strongest determinants of hesitancy.

Moreover, the most common reasons behind vaccine update hesitancy among Asian countries are; not having enough vaccine-related information and concerns over vaccine safety. Based on the studies reviewed, hesitant groups include Christians, urban dwellers, and opposition political party voters in some contexts, people with more years of education, females, people who received COVID-19 information from internet sources, and people who expressed uncertainty about COVID-19 misinformation beliefs. Other determinants includes race, interactive-critical vaccine literacy, trust in the government's ability to roll out the COVID-19 vaccination programme, flu vaccination status and risk perception for COVID-19 infection as key factors influencing the uptake of COVID-19 vaccination.

5.0 Conclusion

The findings from most of the reviewed studies have highlighted that almost one year into the pandemic and about a month before vaccine rollout had begun in most Asian countries, vaccine hesitancy was quite high. As the current vaccine rollout plan will take time, there is also a need to promote holistic public health messaging to ensure that NPI interventions such as face masks, hand washing, physical distancing and hand sanitizer use continue. These behaviors are tied to vaccine hesitancy and confidence, clearly linking the two and the need for cohesive messaging campaigns.

The study conclude that there is variation by socio-demographics and perceived risk of COVID-19 infection and economic impacts; tailored messages may be required to reach those with different concerns, levels of education, and other factors.

Apart from the problems of confidence, complacency, convenience, communications and context, which are already known determinants of VH globally, some specific determinants of vaccine hesitancy in Asia, including vaccine inequality, low national income level, lack of vaccine production and maintenance facilities, insecurity, high adult illiteracy level, endemic corruption, trust deficit, circulation of unconfirmed anti-vaccination rumors and political instability, may be responsible for the low COVID-19 vaccination rate in the Asian continent. The low VARs in Asia have tremendous global public health implication as they may facilitate the emergence of immune invading SARS-CoV-2 VOCs, which may spread worldwide. In Asia, there are multiple drivers of vaccine hesitancy. Concerns about safety, side effects, and effectiveness are widespread and observed among health workers in the region.

6.0 Recommendation

Based on the outcomes of the reviewed papers, this study recommends that COVID-19 vaccination campaigns in Asia should address the concerns of the population and misconceptions about COVID-19 vaccine safety and effectiveness. Moreover, health care workers, parents, schoolteachers, peers, religious leaders, and social media should all be leveraged as channels of advocacy to support vaccination efforts. Consequently, there is a need to confront these challenges squarely and engage traditional and religious leaders in the fight against vaccine hesitancy in Asia, to restore public confidence in the safety and efficacy of vaccines generally.

Future research on COVID-19 vaccination in Asia and other LMIC settings needs to priorities the inclusion of access-related measurements. Inclusion of access variables in future research will add an essential factor to the complex equation around determinants of vaccine uptake in the continent. More importantly, its inclusion will fill a current empirical blind spot around COVID-19 vaccine research in Asia whose results have potential to provide insights into concrete, pragmatic and actionable changes designed to make it easier for individuals to obtain COVID-19 vaccines.

Moreover, to overcome vaccine hesitancy in Asia, there is need for optimal community involvement in the structure and modalities for vaccine delivery. Also, feedback mechanisms for the acknowledgement of community efforts in previous health interventions should be improved to encourage their acceptance of the COVID-19 vaccine. In addition, improved multi-sectoral collaboration would enhance acceptance of COVID-19 vaccines through the provision of more resources required to address COVID-19 vaccine hesitancy.

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