PUBLIC PERCEPTION ON ACCEPTANCE OF COVID-19 VACCINATION FOR BREASTFEEDING WOMAN: A SYSTEMATIC REVIEW

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ABSTRACT

The acceptance of the COVID-19 vaccination has become a controversial subject. Some groups in several countries were against it because of its ineffectiveness. The lack of knowledge experienced by the community and the government's lack of vigilance in vaccination has led to widespread rejection of the COVID-19 vaccine. Due to the differences in groups' responses to COVID-19, breastfeeding women were chosen as the primary subject. This is because they are associated with differences in their responses to COVID-19 vaccination. study aims to describe public perception and acceptance of COVID-19 vaccination, specifically for breastfeeding women. The authors employed a 2020-2022 database with electronic searches on PubMed and Google Scholar. The articles that met the criteria for inclusion were then compared to one another, discussed, and drawn a conclusion. Prior study highlighted that a lack of awareness causes the wrong public perception of COVID-19 vaccination programs. In this regard, the current study revealed that this false perception occurred due to the absence of proper communication from the authorities, including health personnel, convincing people regarding the effectiveness of the COVID-19 vaccine.

Keywords: Breastfeeding Woman, COVID-19, Public Perception, Vaccine

1.0 INTRODUCTION

Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) has been identified as a novel coronavirus and has been present in Wuhan, China, since December 2019. The SARS-CoV-2 virus is responsible for an unusual kind of pneumonia. It quickly spreads globally and is known as COVID-19 [1].

8182

Eur. Chem. Bull. 2023,12(10), 8182-8194

The COVID-19 pandemic was declared a public health emergency of international concern (PHEIC) on January 30, 2020, by the World Health Organization (WHO), making it the organization's sixth acknowledged global health emergency. In response, on March 11, 2020, WHO issued the COVID-19 pandemic declaration. A massive number of illnesses and fatalities caused by the COVID-19 pandemic throughout the globe is driving the search for treatment. Since safe and effective vaccinations have become available, the government has prepared to enable a large-scale equitable distribution and access to the COVID-19 vaccine [2]. Initiatives to foster public acceptance of vaccinations, vaccine providers, and a strong health system are necessary. Especially when there are many different forms and intensities of vaccination services available based on the source and the type of vaccine used [3].

According to the Indonesian COVID-19 Task Force, there were 1,713,684 confirmed instances of COVID-19 in Indonesia as of 2021, including 98,395 (5.7%) data on handled cases, 1,568,277 (91.5%) positive patients who recovered, and 47,012 (2.7%) cases in which the virus resulted in fatalities. Since then, 10,205,668 Indonesians have undergone antigen testing and polymerase chain reaction (PCR) + rapid molecular detection (RMD) testing. In the first phase, 13,340,957 Indonesians received COVID-19 vaccination, then in the second phase, 8,634,546 were vaccinated [4]. The vaccine should primarily be given to the population segments most at risk, such as healthcare professionals and individuals over 65, according to the public health programs presently being pursued worldwide. However, because of the pandemic's severity, the timeline for COVID-19 vaccine development and assessment was shortened, and an expedited regulatory authorization procedure was advised.

Furthermore, until 2021, the safety of COVID-19 vaccinations for specific population groups, such as children and teenagers under the age of 16, pregnant women, and nursing mothers, has not yet been adequately studied due to its acceleration [5]. Ioannidis [6] stated that there are still many unresolved questions regarding the appropriate vaccination method for young age groups, but increasing the vaccination rates of older and vulnerable populations remains an uncontested global top priority. In addition, excluding pregnant and lactating women from COVID-19 vaccine trials reflects a historical pattern of 'protection by exclusion.' This exclusion is unjustified. Pfizer and Moderna, for instance, excluded pregnant and nursing women from their mRNA COVID-19 vaccine trials despite the absence of biological data indicating that the vaccines are teratogenic or are passed through breast milk [7].

Numerous research initiatives have developed viable vaccinations against COVID-19. However, vaccine development alone is insufficient, given the many people who must be vaccinated to achieve broad protection. Conspiracy theories have been linked to an increase in vaccine skepticism worldwide [8]. While conspiracy theories about the origins of COVID-19 have proliferated, our goal is to investigate how these theories are linked with cross-cultural research on vaccination skepticism and new coronavirus ideas [9]. For people to get the required vaccinations, governments, public health professionals, and advocacy organizations must be able to allay their worries and improve public awareness of vaccines. Furthermore, some individuals vehemently deny the existence of COVID-19, and anti-vaccine activists have launched efforts in various nations to reduce vaccination demand [10].

Vaccinating nursing mothers is still safe since breastfeeding has more benefits than the possible risk of COVID-19 transmission and can significantly lower the risk of baby mortality. Breastfeeding mothers are known to have antibodies that defend their children on a biological and clinical level [11-14]. Knowing that the COVID-19 virus cannot be found in breast milk and that their children have a minimal chance of catching the virus, it is recognized that mothers who have tested positive for the virus may continue breastfeeding, provided they keep a healthy lifestyle [12], [15], [16].

8183

Eur. Chem. Bull. 2023,12(10), 8182-8194

The transmission of misinformation across numerous media could significantly impact the vaccine's acceptance [17]. Accelerating vaccine development has exacerbated public worry and may contribute to a decline in public acceptance. Public and government should assess the existing degree of support for the COVID-19 vaccination and the relationship between skepticism against the vaccine and its acceptability [18]. Therefore, this research aims to analyze the literature and examine how widely the public has accepted COVID-19 vaccination for nursing women.

According to many studies, the COVID-19 vaccination has been recommended for breastfeeding mothers by international health organizations. The vaccine's adoption, meanwhile, is still modest. Various types of COVID-19 vaccinations were being developed, and they were concerned about the safety of these vaccines and their effects on breastfeeding women. The risk is that it will impact breast milk production. Diverse communication strategies and health policies are employed to make this vaccine acceptable to breastfeeding women [12], [14].

This study highlights the importance of the COVID-19 vaccine for vulnerable groups, namely breastfeeding women. This review provided data about the acceptance of vaccinations from prior studies. The results of this review may benefit health workers or policymakers in the future regarding how people accept vaccination (regardless of vaccine type). In addition, reasons for acceptance or rejection of vaccination, like those identified during the initial implementation of the COVID-19 vaccination program, may be helpful for future policy development.

2.0 METHODS

The preparation of this literature review used two online-based databases with electronic searches on PubMed and Google Scholar, which were carried out from April 13 to 30, 2022, when there were still concerns about the efficacy of vaccinations against vulnerable groups. The search was restricted to English-language publications. As a search strategy, multiple terms or keywords were combined to obtain the correct paper, using the words vaccine, breastfeeding, COVID-19, and Global "+" acceptance and society. Articles included in this review must fulfill the following inclusion criteria: a study on vaccine acceptance; public opinion polls on vaccination against the COVID-19 virus; research on public opinion on COVID-19 vaccination; and research published in 2020 to 2022. The descriptive research design includes quantitative, qualitative, and surveys, especially for COVID-19 patients, as well as articles in full-text form, articles in the form of a systematic review, articles in English, published articles and duplicated articles. Articles included in the inclusion category that met the analyzed criteria were compared to another, discussed, and concluded.
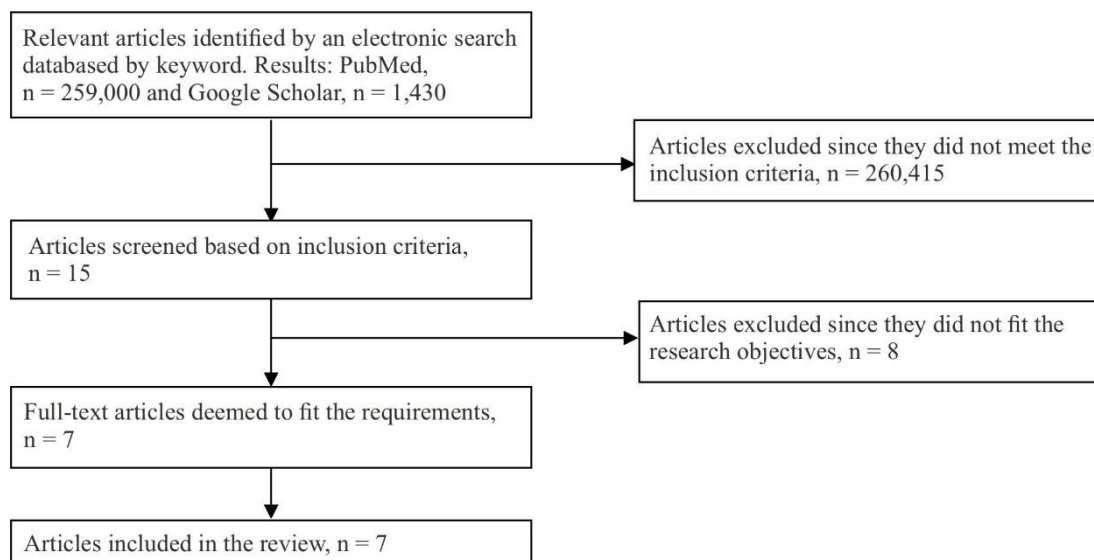
Figure 1: The procedure used to select the papers for this review

Table 1: Articles about the acceptance of COVID-19 vaccination and COVID-19 vaccination for breastfeeding women.

Author(s)	Title/Purposes	Research Design	Journals	Results
Lazarus et al. [19]	Title: "A global survey of potential acceptance of a COVID-19 vaccine." Purpose: Increase public confidence worldwide regarding the acceptance of COVID-19 vaccination.	Survey data collection	Nature Medicine	Approximately 70% of respondents said they would get the vaccine if it were safe and effective, and 48.1% stated they would get it if their doctor advised it. Timing and concrete evidence of the COVID-19 vaccination's effectiveness and safety could affect how quickly the vaccine is accepted.
Sallam [20]	Title: "COVID-19 vaccine hesitancy worldwide: a concise systematic review of vaccine acceptance rates." Purpose: Provide an updated global evaluation of the perceived COVID-19 vaccination acceptance rate.	Survey descriptive study	Vaccines	The vaccine's low acceptance rate may be a significant barrier to the global management of the present COVID-19 pandemic.
Salali and Uysal[21]	Title: "COVID-19 vaccine hesitancy is associated with beliefs on the origin of the novel coronavirus in the UK and Turkey."	Survey descriptive study	Psychological Medicine	Overcoming doubts about self-satisfaction, convenience, and trust in carrying out the COVID-19 vaccine can build confidence in the COVID-19 vaccination effort. Wider communication can help remove the

8185

Eur. Chem. Bull. 2023,12(10), 8182-8194

Author(s)	Title/Purposes	Research Design	Journals	Results
	Purpose: Check the COVID-19 vaccine hesitation level and its relationship to beliefs about the origin virus suggestion, the new corona.			level of COVID-19 vaccine doubts in the world view of conspiratorial.
Akarsu et al. [22]	Title: "While studieson COVID-19 vaccines areongoing, thepublic'sthoughts andattitude tothe futureCOVID-19Vaccine" Purpose: To investigate future thoughts andindividual attitudesto the COVID-19 vaccine.	Web survey	Clinical Practice Journal	Gender, job, guaranteed health, level of anxiety, and development-related vaccines influence the acceptance of COVID-19 vaccination. Women have a negative opinion of COVID-19 vaccines compared to men. People who do not work hesitate to get vaccinated. In addition, the vaccine anxiety level is a side effect of the vaccine due to the COVID-19 vaccine being a new type of vaccine.
Walker et al. [23]	Title: "Breastfeeding in the context of the COVID-19 pandemic: A discussion paper." Purpose: Providing an overview of essential areas of knowledge related to practice for neonatal nurses and midwives who care for breastfeeding mothers and babies in the context of the COVID-19 pandemic and the latest global guidance.	Discussion paper	Journal of Neonatal Nursing	The COVID-19 pandemic makes it challenging to provide nursing and midwifery care, especially assistance with breastfeeding. Neonatal nurses and midwives must acknowledge that the pandemic has presented them with unusual circumstances that, in some cases, have temporarily affected the quality of care they provide. They must continue to advocate and ensure that the best evidence-based practice is provided whenever possible to preserve mother-baby bonds and support breastfeeding success.
Ceulemans et al. [24]	Title: "Vaccine willingness and impact of the COVID-19 pandemic on women's perinatal experiences and practices—a multinational, cross-sectional study covering the first wave of the pandemic." Purpose: Exploring their beliefs about the	Web-based study	International Journal of Environmental Research and Public Health	At the end of the first wave of the pandemic, 40–50% of respondents were found to be reluctant to receive the COVID-19 vaccination, with pregnant women being resistant. Hesitancy to receive a vaccine was linked to employment and education status.

8186

Eur. Chem. Bull. 2023,12(10), 8182-8194

Author(s)	Title/Purposes	Research Design	Journals	Results
	coronavirus and COVID-19 vaccine willingness and assessing the impact of the pandemic on perinatal experiences and practices.			
Garg et al. [25]	Title: "COVID-19 vaccine in pregnant and lactating women: a review of existing evidence and practice guidelines." Purpose: To examine the efficacy and safety profile of COVID-19 vaccination in pregnant and lactating women, review the challenges of vaccine hesitancy, and include recommendations for healthcare providers.	Literature review	Infectious Disease Reports	Vaccination is the most effective method of preventing the global pandemic caused by COVID-19. While prioritizing their participation in clinical trials for vaccination, anti-viral medicines, and vaccine administration, protecting our vulnerable pregnant and breastfeeding women is crucial. Healthcare professionals must stay current on new findings for pregnant and lactating women to get evidence-based advice and efficient counseling.

3.0 RESULTS

The database search generated 260,430 papers as a result. However, 260,423 were disregarded since they did not address the study issue directly. Of the items that have been discovered, seven satisfy the requirements for inclusion. These articles discuss how well the public and nursing mothers receive the COVID-19 vaccination. Four papers described vaccination acceptability using surveys, while the remaining articles employed direct research and literature reviews (see Table 1). Additionally, three publications covered vaccination for nursing mothers, while four papers covered general acceptance of the COVID-19 vaccine. Figure 1 depicts an overview of the method used to choose the papers included in this research.

According to a survey by Lazarus et al. [19], about 70% of people would get the vaccination if it were safe and effective, while 48.1% stated they would get it if their doctor suggested it. In addition, according to recent data on 2021, the countries with the lowest acceptance of COVID-19 vaccination were Iraq (13%), Cameroon (15%), Russia (30%), Cyprus (35%), and Portugal (35%) [26]. The most mentioned reasons for refusing vaccination were being against vaccines in general, safety concerns/thinking that a vaccine produced in a rush is too dangerous, considering the vaccine useless due to the harmless nature of COVID-19, a general lack of trust, doubts about the effectiveness of the vaccine, the belief that they were already immunized, and doubts about the vaccine's origin [27].

4.0 DISCUSSION

Global efforts to contain the pandemic's effect and minimize its health and socioeconomic consequences focus mainly on prevention [28]. The scientific community and pharmaceutical industry have made

8187

significant efforts to create an effective and safe SARS-CoV-2 vaccine with government assistance. In 2020, the WHO reported that this initiative was made possible by approving many vaccinations for emergency use. Until then, around 170 COVID-19 vaccine candidates were under preclinical development [19]. The following sub-section discusses many studies conducted in correlation with the COVID-19 vaccine acceptance for breastfeeding women that became challenges for the global community to take vaccines [29].

4.1 Breastfeeding and COVID-19

Hare and Womersley [30] stated that accepting evidence gaps should not be modeled on enabling nursing women to get the COVID-19 vaccination. Women must be given the freedom to make decisions about their bodies, but if female populations are not also researched, this is a farce of women's liberation. Although testing innovative medicines on nursing women presents clear ethical challenges, a thorough study into the vaccinations' safety during breastfeeding must nonetheless be a top concern.

Many people who get infected with this illness exhibit mild-to-moderate symptoms, according to the information that is currently available, and pregnant women do not seem to develop this infection at a greater incidence than the general population. Pregnancy is a health concern for severe COVID-19, even though pregnant women have a low absolute risk of the disease. According to data from extensive research, 8–11% of pregnant women need treatment for COVID-related morbidity, and 2-4% need to be admitted to an intensive care unit [31].

4.2 Effectiveness of COVID-19 Vaccines for Breastfeeding Women

Despite the potentially catastrophic consequences of COVID-19 infection in pregnant women and the availability of safe and effective (in non-pregnant populations) COVID-19 vaccination, few published studies confirm the safety or efficacy of any COVID-19 vaccine in human pregnancy. An extensive review of observational studies, clinical case reports, registries, and clinical trials are necessary to ascertain whether vaccination is safe (possibly reducing morbidity in the pregnant woman and fetus) and practical (reducing adverse pregnancy outcomes or potential injury to mother and fetus) [25].

In a prospective cohort study conducted with 131 vaccine recipients of reproductive age (84 pregnant, 31 lactating, and 16 non-pregnant women), Gray et al. found that mRNA-based COVID-19 vaccines produced a robust humoral immune response in pregnant and lactating women, with immunogenicity and reactogenicity related that seen in non-pregnant women. They also discovered that the placenta and breast milk transfer protective immunoglobulins to newborns [32].

According to the study by Polack et al. [33], no significant adverse event involving a mother or an infant occurred during the research period of vaccine treatment. A negative response to the immunization was reported in 47 (55.9%) mothers and 52 (61.9%) newborns after the first dose of the vaccine. The most common adverse effect observed was local discomfort. Four babies had 7, 12, 15, and 20 days of fever throughout the study after the mother received the vaccination. Except for one infant who was hospitalized for a newborn fever examination due to his age and got antibiotic medication while awaiting the results of the culture, all of them had upper respiratory tract infection symptoms, including cough and congestion, that went away on their own. Other verse-related incidents were not documented.

4.3 Government Role

People who denied the vaccination had higher odds of believing in their government [OR = 1.67; 95% CI (1.54, 1.80)]. People were more inclined to believe in it if they trusted their government. Employers who support vaccination campaigns are more likely to get favorable feedback than those who do not [OR =

8188

4.35; 95% CI (4.01, 4.72)]. According to this data, employers would do better to encourage voluntary acceptance, which was similar across almost all countries with high or low vaccine uptake rates. This research assessed 13,426 randomly chosen people in 19 nations/regions with a high COVID-19 burden for the possible use of the vaccine. Approximately 48.1% of respondents indicated they would receive the vaccination if their doctor recommended it, and 71.5% said they would if it was safe and effective. However, there were a variety of answers from different nations. Vaccine decisions can be complex and dynamic, so reporting a desire to vaccinate may not always be a reliable predictor of acceptance. The fact that everyone does not yet accept the COVID-19 vaccine is a cause for worry.

Many Asian nations have populations who trust their central authority more than 80% of the time (China, South Korea, and Singapore). Brazil, India, and South Africa are examples of middle-income nations that have shown a high level of acceptance. If the root reasons for the significant differences in willingness to receive the COVID-19 vaccination are not adequately recognized and addressed, the containment of a worldwide pandemic and the subsequent social and economic recovery may be delayed. The most notable discrepancies between groups that their demographics may identify are seen at lower income and educational levels. Future vaccine distribution strategies should consider subgroups' general health, science, and cultural groups, as well as the most reliable sources of information in their communities, rather than asserting that vaccinations are safe and effective [29].

An effective strategy for educating people about vaccine safety and acceptance must be tailored to their fears or misperceptions while also considering their religious or philosophical beliefs. Implementing these strategies in a widespread vaccination campaign requires understanding current public attitudes, perceived needs, and attention, even though researchers have discovered promising strategies for boosting vaccine trust and decreasing vaccine mistrust in various contexts. These community leaders' opinions will be the key to success. Additionally, we have noticed a correlation between vaccination and age. Older people are more likely to claim that they will receive vaccinations, while respondents aged 25-54 and 55-64 are more inclined to accept vaccine recommendations from others.

The outcomes of those investigations may represent individuals who were genuinely hired or commissioned for the research objectives. Male respondents are often less likely than female respondents to get vaccinated or require a referral from another person (employer). In addition, people who make more money are more likely to get their children vaccinated than those who make less. Governments, lawmakers, health experts, and international organizations can use this data to target more effectively. In addition, discrepancies between employer-mandated reports are another cause of worry [34].

COVID-19 vaccination requires trust, but that trust can be built over time. To help the public adhere to prescribed measures, our findings show that the public's faith in the government's approval of vaccines is low. Lessons learned from earlier infectious disease outbreaks, and public health catastrophes include reliable information and direction for disease management (H1N1, SARS, MERS, and Ebola). It takes more than confidence to dispel vaccination anxiety. Global, national, and subnational governments must simultaneously work together to accomplish this complex task [35].

Communication that is clear and consistent is necessary. The public's confidence in the vaccination program is built on the credibility of government officials. The public will know how vaccines are created, from recruiting volunteers to regulatory approval based on safety and effectiveness. A good campaign should also detail the vaccine's effectiveness, the duration of protection (using several doses if required), and the significance of community vaccination. It is essential to instill public confidence in the regulatory process for determining the safety and effectiveness of vaccines. COVID-19 control measures show that effective health communication that is credible and culturally sensitive is crucial for influencing beneficial

8189

Eur. Chem. Bull. 2023,12(10), 8182-8194

health behaviors. This includes preparing the public and respected civil society organizations, religious and fraternal organizations from all sectors of society, and local communities. In addition, the commercial sector should support mass vaccination campaigns through trustworthy spokespersons, local engagement, correct information, and technical support [22].

Global attempts to contain the pandemic's effect and ameliorate its health and socioeconomic consequences rely heavily on prevention. The scientific community and pharmaceutical industry have made significant efforts to create an effective and safe SARS-CoV-2 vaccine with government assistance. According to the WHO, in addition to the more than 60 candidate vaccines currently undergoing clinical trials, numerous emergency vaccines have been licensed, completing this effort.

4.4 Factors Influenced Vaccine Acceptance

The recurrence of several infectious diseases shows that vaccine hesitancy is a natural phenomenon threatening global health (such as measles and pertussis outbreaks) [35]. Unusually, a COVID-19 vaccine could be created with such speed and safety [36]. Suspicions regarding the COVID-19 vaccination may hinder global attempts to limit the present epidemic, which is wreaking havoc on health and socioeconomics. The population immunity required to stop the virus from spreading is calculated using the main reproductive number of an infectious illness [37]. Recent estimations for COVID-19 indicate that 60% and 75% of vaccinated individuals are required to limit virus transmission and dissemination in the community [38].

People were willing to be vaccinated because they believed the vaccination was not just for themselves or their children but also for the health of people around them, according to research related to surveys to examine individual attitudes regarding COVID-19 vaccines in the future. The second justification is that vaccinations provide COVID-19 protection. Research also looked at people's attitudes and views of COVID-19 vaccination. As many as 8.6% of respondents said they would not get the COVID-19 vaccine, while 35.9% said they were unsure. Meanwhile, up to 14.8% said that if a COVID-19 vaccine were developed, they would not vaccinate their children, while 43.2% undecided.

According to recent research, there is a broad spectrum of skepticism around the COVID-19 vaccination. Compared to Canada (20%) and the United Kingdom (6%), 29% of New Yorkers said they would not be vaccinated. Participants were worried about the COVID-19 vaccine's possible adverse effects. In addition, many parents are concerned about the brand-new COVID-19 vaccination for themselves and their children. Research conducted by Salali and Uysal related online surveys in the UK and Turkey indicated that people in Turkey and the UK were unsure whether they had been vaccinated and therefore avoided vaccination due to their belief in the new coronavirus's natural origin. Their belief in natural sources significantly enhances the likelihood of adoption of the COVID-19 vaccination [21].

Individuals' education levels affect their thinking and attitudes concerning the COVID-19 vaccination. With increased education, participants have more perspectives about vaccinations for their children [22]. In addition, economic considerations are another factor that influences people's willingness to get vaccinations. People who do not work are less likely to get a vaccination. Private health insurance holders are more likely to get vaccinations than non-holders. Additionally, if they had had the seasonal flu shot, more individuals would have been vaccinated against COVID-19 for themselves and their kids. The COVID-19 vaccine is a great option, but the biggest challenge to a successful vaccination campaign is the vaccine's reluctance [39].

Sallam and Mahafzah [40] conducted research on the amount of COVID-19 vaccination acceptability undertaken in 33 countries. According to World Meter, vaccination hesitancy is a severe issue in the field

8190

of global health. The current pandemic, which is causing havoc on health and socioeconomics, may be challenging to manage due to concerns about receiving the COVID-19 vaccine. WHO asserted that adopting vaccines would help organize the necessary actions and steps to raise public awareness and persuade the public of the vaccine's benefits and safety, which will essentially help control the spread of the virus and minimize adverse effects. Cost, effectiveness, and length of protection the vaccination provides seem to be equally significant elements in reaching this objective. The present COVID-19 pandemic, however, may be difficult to contain due to reluctance over the COVID-19 vaccine's acceptability. There is a high degree of vaccination adoption in areas where people trust their government more and believe vaccines are safe and effective.

5.0 CONCLUSIONS

A lack of adequate information causes doubts to arise in the community. Government, health officials, and media outlets (including suggested corporate social media) must work together to promote public confidence in COVID-19 vaccination via the prompt dissemination of information to address universal adoption of the COVID-19 vaccine. This is obvious from reliable evidence on the effectiveness and safety of the COVID-19 vaccination, which is currently accessible. The world's economy, society, and tourism would suffer significantly if people did not believe in the COVID-19 vaccination. This would lead to widespread unemployment, starvation, and other ailments like malnutrition as well as a rise in the death rate of the world's population. The reality obtained from this study is that the level of public anxiety and doubt that causes people to have a wrong perception regarding COVID-19 vaccination activities stems from the absence of effective communication and appropriate education from the health services community, causing news to circulate in the community. Instead, it contains elements of a hoax and frightens the public to undergo vaccination. The study revealed that the COVID-19 vaccination given to nursing mothers provides no risk to children who are breastfed or who get expressed breast milk, according to an assessment of the literature. In addition, the mother's antibodies after receiving a vaccine may specifically protect the newborn via breastfeeding.

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8191

Eur. Chem. Bull. 2023,12(10), 8182-8194

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