

**Descriptive Study on COVID-19 Vaccination Knowledge and Acceptance among Women of Reproductive Age Group in Tamilnadu**K J Jeevitha<sup>1\*</sup>, R. Rajakeerthana<sup>2</sup>, Kavitha. G<sup>3</sup><sup>1</sup>MBBS DNB (OG) MNAMS, Assistant Professor, Department of Obstetrics & Gynecology, Velammal Medical College Hospital<sup>2</sup>Assistant Professor, Department of Obstetrics & Gynecology, Velammal Medical College Hospital<sup>3</sup>Professor, Department of Obstetrics & Gynecology, Velammal Medical College Hospital

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Corresponding Author: Dr. K J Jeevitha

Conflict of interest: Nil

**Abstract:****Introduction:** The acceptability of the COVID-19 vaccine among women of reproductive age is not well understood. Therefore, this study aims to investigate and elucidate the level of knowledge regarding the COVID-19 vaccine and its acceptance among a cohort of women actively planning pregnancy.**Method:** This descriptive study was carried out among women residing in rural areas of Madurai, Tamil Nadu, India, comprising 227 participants of reproductive age group during the year 2021. Data collection was facilitated through semi-structured questionnaires administered via interviews. Statistical analysis was performed using SPSS version 21.**Results:** Among the 227 participants, approximately 50% fell within the 18-30 age range, and nearly 78% possessed at least a higher secondary education. Employment status indicated that 66% were employed, while the remainder were unemployed. Gravidity status did not exhibit significant differences in awareness. The overall awareness rate stood at 70%, with a corresponding acceptance rate of 61%.**Conclusion:** Despite awareness of the vaccines among women, hesitancy persists. Literacy significantly influences vaccine awareness and acceptance. It's crucial to inform women of reproductive age that COVID vaccines are safe for use, with any side effects being mostly minor. While vaccine trials haven't specifically targeted pregnant women, the benefits of vaccination far outweigh any potential risks to the fetus. Ensuring women are informed about this can help alleviate concerns and encourage vaccine uptake.**Keywords:** Rural women, COVID Vaccine acceptance, Awareness, Reproductive Age Group.This is an Open Access article that uses a funding model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.**Introduction**

The emergence of the novel coronavirus, SARS-CoV-2, in late 2019 sparked a global pandemic, leading to widespread morbidity, mortality, and socio-economic disruption. COVID-19, the disease caused by SARS-CoV-2, has posed unprecedented challenges to public health systems worldwide. [1] Efforts to curb the spread of the virus have primarily focused on non-pharmaceutical interventions such as mask-wearing, social distancing, and lockdowns. However, the development and deployment of safe and effective vaccines against COVID-19 have presented a pivotal tool in the fight against the pandemic. [2]

The rapid development and approval of COVID-19 vaccines have marked a significant milestone in the history of public health. Since the deployment of the first vaccines in late 2020, numerous countries have initiated mass vaccination campaigns to achieve population immunity and curb the transmission of the virus. While vaccination efforts

have shown promising results in mitigating the impact of the pandemic, ensuring equitable access and addressing vaccine hesitancy remain crucial challenges. [3] Among the demographic groups targeted for vaccination, women of reproductive age represent a particularly important cohort. This group not only plays a critical role in shaping household health behaviours but also holds the key to future generations' health outcomes. Understanding their awareness, knowledge, and attitudes towards COVID-19 vaccination is therefore paramount for informing targeted public health strategies.

The importance of achieving high vaccination uptake to attain herd immunity cannot be overstated, yet vaccination hesitancy poses a significant barrier to this goal. Defined as the reluctance or refusal to accept vaccination despite its availability, vaccine hesitancy is influenced by various factors such as complacency, ease, and

confidence, and it manifests differently across time, place, and specific vaccines. In fact, vaccine hesitancy was identified as one of the top ten global health issues in 2019, underscoring its critical impact on public health. False information, particularly disseminated through social media platforms, exacerbates vaccine hesitancy, presenting a formidable challenge in the current pandemic landscape. [4]

Efforts to combat misinformation by removing inaccurate content from social media platforms have not yielded the desired outcomes. In response, some initiatives have employed specially designed social media platforms with trained administrators to monitor trends, counter false information, and disseminate fact-based information through various online and offline channels. [5]

Understanding that individuals are more likely to engage in health-related behaviours when they perceive them as impactful and when they feel empowered to make choices regarding their health, this study was conducted to assess the knowledge and acceptance of the COVID-19 vaccine among pregnant women and those planning pregnancy.

#### Material and Methods

A descriptive study was conducted among women residing in rural areas of Madurai, Tamil Nadu, India, following approval from the institutional ethical committee. A total of 227 women, within the reproductive age group, participated in the survey conducted in 2021, after providing informed

consent. The study encompassed all women of reproductive age, excluding postmenopausal individuals and those under 18 years of age. Data collection involved the utilization of a semi-structured questionnaire administered to the participants, covering socio-demographic characteristics, perception of COVID-19 pandemic-related risks, vaccination history, pandemic impact, and attitudes towards COVID vaccination. Statistical analysis was performed using the Statistical Package for Social Sciences (SPSS version 21). Basic descriptive statistics including mean and standard deviation were computed to offer fundamental insights into the dataset. The chi-square test was employed to determine the p-value, with a threshold of less than 0.05 considered significant at a 95% confidence level, aiding in assessing associations among variables and drawing conclusions.

#### Results

Among the 227 participants, approximately half (49.8%) were in the 18-30 age range, and a significant majority (77.8%) had obtained at least a higher secondary education. Notably, 22% had not completed elementary school education. The mean age was  $27.88 \pm 6.457$ , with an age range of 18 to 35. Employment status revealed that 52% were employed, while the remaining participants were unemployed. Gravid status distribution included 31% nulliparous, 29% primiparous, and 40% multiparous women.

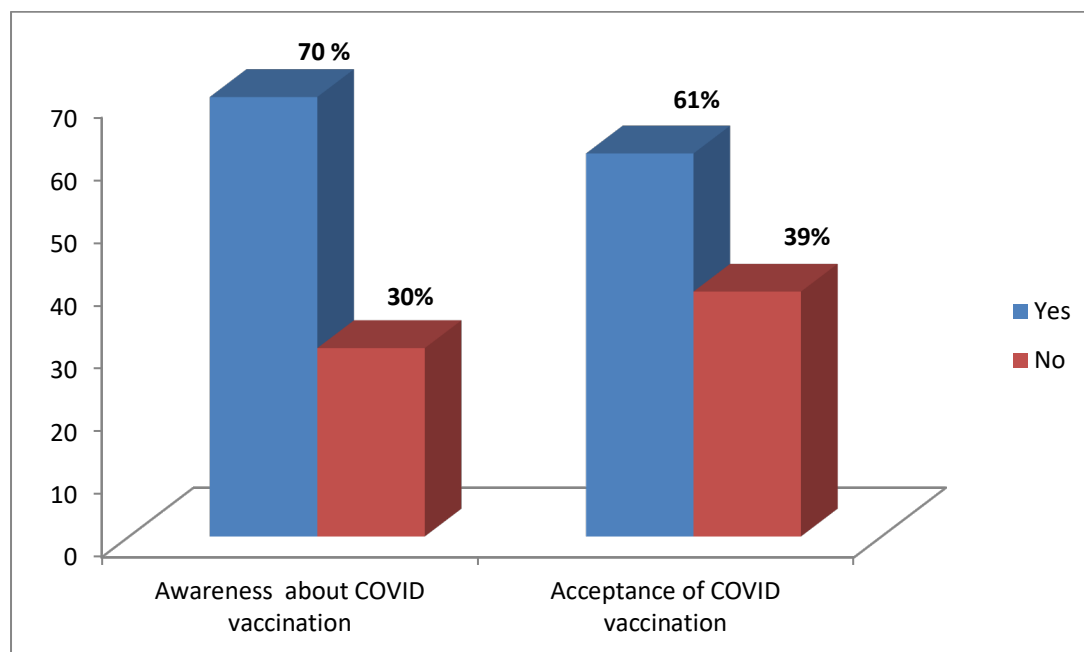


Fig 1: Awareness & Acceptance of COVID vaccination

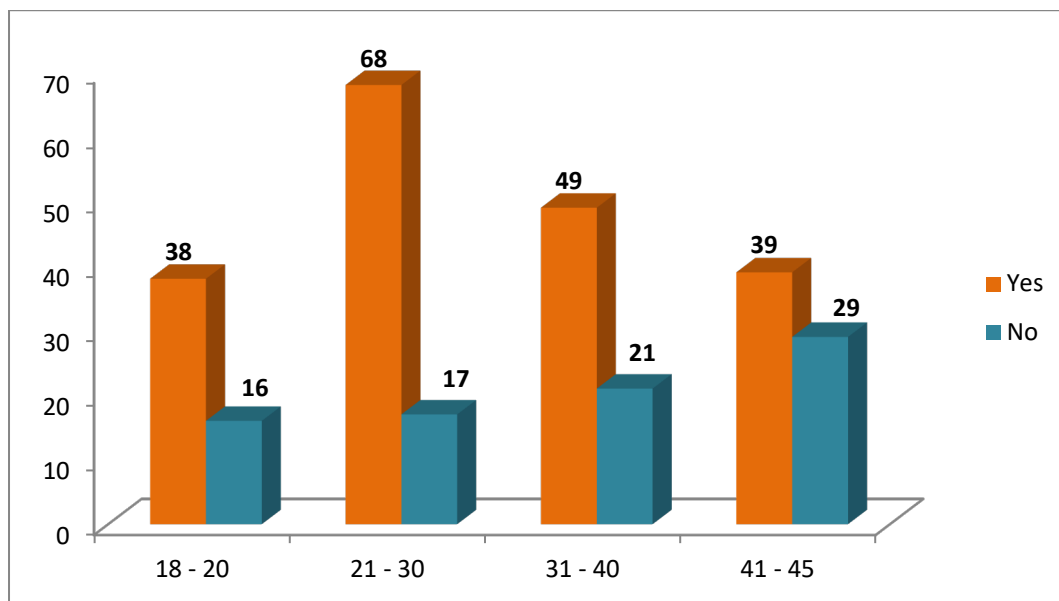
Overall, the study identified a 70% awareness rate and a 61% acceptance rate for COVID vaccination among the participants. The demographic profile suggested that a majority of the women were either planning to conceive

or were in their first pregnancy. Further analysis revealed that women aged 18-30 exhibited higher awareness (35%) of the COVID vaccine compared to other age groups.

**Table 1: COVID vaccination and obstetric factors**

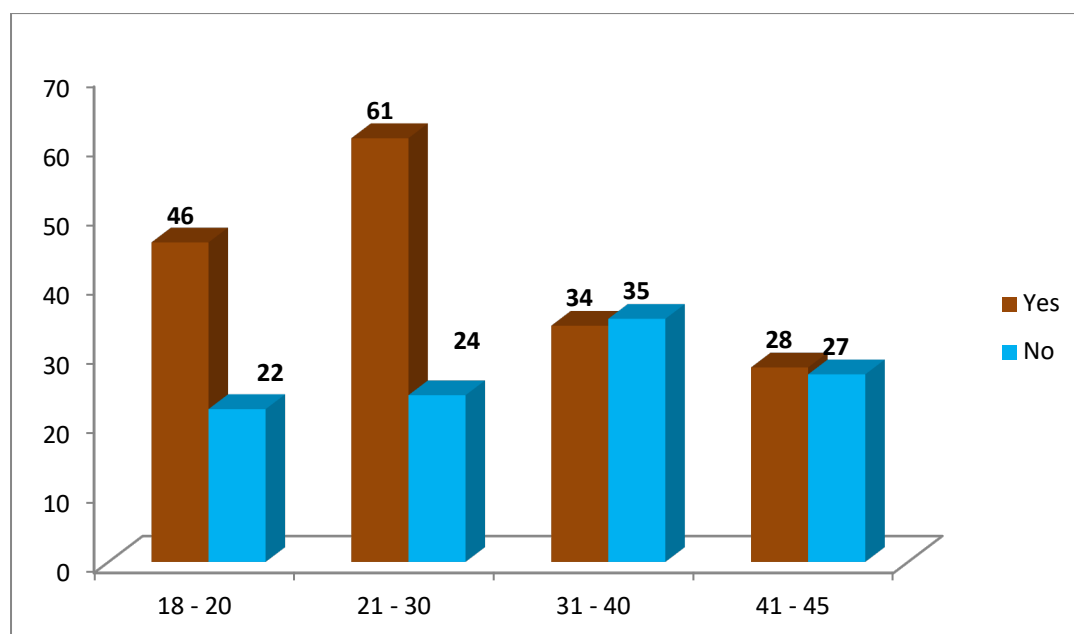
Variable	Acceptance of COVID vaccine		P value
	Yes	No	
Nulliparous	39 (23%)	49 (45%)	0.003*
Primiparous	69 (41%)	32 (29%)	
Multiparous	61 (36%)	28 (26%)	

Educational attainment emerged as a significant factor, with educated women demonstrating greater awareness than their uneducated counterparts. Gravid status did not show significant differences in awareness levels. Notably, primiparous women exhibited a higher acceptance rate (41%) compared to multiparous (36%) and nulliparous (23%) women. The study emphasized the influential role of literacy in vaccine awareness and acceptance.



**Figure 2: Distribution of awareness about COVID vaccination**

Despite the evident awareness, the study highlighted hesitancy among women in taking the vaccines. This finding underscores the importance of addressing vaccine hesitancy through targeted educational interventions, especially among specific demographic groups, to ensure broader acceptance and uptake of COVID vaccination.



**Figure 3: Distribution of Acceptance of COVID vaccination**

### Discussion

The findings of this study shed light on several important factors influencing COVID-19 vaccine awareness and acceptance among women of reproductive age in rural Madurai, Tamil Nadu, India.

The discussion will delve into key insights from the results, contextualize them within the existing literature, and propose recommendations for addressing vaccine hesitancy in this population. The study revealed that younger women aged 18-30 exhibited higher awareness of the COVID vaccine compared to other age groups. This finding aligns with previous research indicating that younger individuals are more likely to be engaged with health-related information and technology. [6,7]

Furthermore, educational attainment emerged as a significant predictor of vaccine awareness, with educated women demonstrating greater awareness compared to uneducated counterparts. This observation is consistent with studies emphasizing the positive correlation between education level and health literacy. [8] The higher awareness among educated women underscores the importance of targeted health education campaigns to bridge the gap in vaccine knowledge among less-educated individuals. Interestingly, gravid status did not show significant differences in vaccine awareness levels. However, primiparous women exhibited a higher acceptance rate compared to multiparous and nulliparous women. This finding suggests that women in their first pregnancy may be more receptive to vaccination, possibly due to heightened awareness of the risks posed by COVID-19 during pregnancy. [9] It also highlights

the need for tailored communication strategies to address specific concerns and misconceptions among multiparous and nulliparous women, thereby promoting vaccine acceptance across all gravid statuses.

The study underscored the influential role of literacy in vaccine awareness and acceptance. Educated women were more likely to be aware of the COVID vaccine and demonstrate higher acceptance rates. This finding resonates with existing literature emphasizing the critical role of health literacy in shaping health-related behaviors and decision-making processes. [10-12] Addressing literacy-related barriers through targeted educational interventions can enhance vaccine uptake among marginalized and underserved populations, ultimately contributing to achieving equitable vaccine distribution and coverage. Despite the evident awareness, the study highlighted hesitancy among women in taking the vaccines. This finding underscores the complex interplay of factors contributing to vaccine hesitancy, including misinformation, distrust in healthcare systems, and cultural beliefs. [13] To address vaccine hesitancy effectively, multifaceted strategies are needed, including community engagement, culturally sensitive communication, and addressing misinformation through trusted channels. [14-16] Furthermore, leveraging existing healthcare infrastructure, such as antenatal care visits, can serve as opportunities for targeted vaccine counselling and education among women of reproductive age. Future research should explore the longitudinal impact of educational interventions on vaccine awareness and acceptance among women of reproductive age. Additionally, qualitative studies are warranted to gain deeper

insights into the socio-cultural determinants of vaccine hesitancy and identify effective strategies for addressing misconceptions and concerns within the community.

### Conclusion

This study provides valuable insights into COVID-19 vaccine awareness and acceptance among women of reproductive age in rural Madurai, Tamil Nadu, and India. The findings underscore the importance of addressing educational and literacy-related barriers, tailoring communication strategies to specific demographic groups, and implementing targeted interventions to mitigate vaccine hesitancy. By prioritizing community engagement and leveraging existing healthcare infrastructure, we can foster greater acceptance and uptake of COVID-19 vaccination, thereby contributing to the collective effort to combat the pandemic.

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