

# Perception of and Intention to Accept the Malaria Vaccine Amongst Pregnant Women in Nasarawa State: A Cross-Sectional Study

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## ABSTRACT

**Background:** Malaria is still one of the main causes of maternal and neonatal morbidity and mortality in Nigeria, and pregnant women are especially at risk. The RTS, S/AS01 malaria vaccine has been approved by the World Health Organisation, but there isn't much information and limited data exists on how pregnant women in Nasarawa State feel about it. Malaria remains prevalent in Nasarawa state and causes about 60% of outpatient visits during pregnancy. This study examined socio-demographic factors, identified barriers and facilitators to vaccine acceptance, and evaluated pregnant women in Nasarawa State, Nigeria, regarding their perceptions of, and intentions to accept the malaria vaccine.

**Methods:** A descriptive cross-sectional study of 480 pregnant women attending antenatal care clinics was carried out from June to September 2025 across the three senatorial zones of Nasarawa State employing the use of a two-stage sampling technique. These pregnant women were assessed from six healthcare facilities. The data was collected using structured questionnaires based on the Health Belief Model and Theory of Planned Behaviour framework to assess the socio-demographic characteristics, their awareness, knowledge, perceptions, and lastly intentions to accept the malaria vaccine. Also, of the 480 pregnant women, 32 were selected for in-depth interviews to obtain thematic qualitative insights into their perceptions and intentions to assess vaccine uptake influences. The quantitative data were analysed using the Statistical Package for Social Sciences, while the qualitative data were analysed thematically using NVivo 12 software. Descriptive statistics, chi-square tests, independent t-tests, Pearson correlation, and reliability analyses were all carried out in this study.

**Results:** The average age of participants in this study was 33.2 years. The majority of respondents were either Christians (48.8%), married (71.5%), and had a bachelor's degree (46%). Awareness of malaria vaccines was high at 72.5%, primarily through healthcare workers (33.3%) and media (28.9%). However, detailed knowledge remained moderate; with Health Belief Model scale mean scores of 21.90 out of 30. Overall, 58.9% of the pregnant women showed a good intention to accept the vaccine, with 15.6% of them expressing negative intentions and 20.8% remaining neutral. Vaccine acceptance and uptake were significantly associated with education level ( $p = 0.002$ ), marital status ( $p < 0.001$ ), occupation ( $p = 0.034$ ), and household income ( $p = 0.005$ ). The Health Belief Model and Theory of Planned Behaviour scores had high internal consistency (with Cronbach's alpha values of 0.798 and 0.909, respectively) and a significant correlation ( $r = 0.733$ ,  $p < 0.001$ ). The major barriers identified from this study were concern for safety regarding the state of the foetus, gaps in information, cultural beliefs, and lack of support from spouses/partners. Healthcare provider advice, prior malaria experience, and family support all played important roles in influencing vaccine perception and intentions.

**Conclusion:** Although pregnant women in Nasarawa State are generally aware of malaria vaccines, there are significant information gaps, and conditional acceptance remains. Socioeconomic circumstances, health beliefs, and family dynamics heavily influence vaccine acceptability.

