

Assessment of The Acceptance of The RTS, S/ASo1 Malaria Vaccine By Parents of Children Under Five Years of age in the Foubot and Fouban Health Districts in Cameroon

Joliette Nguefack Azakoh¹, Eric Defo Tamgno², Solomon Ifang³, Béatrice Talom⁴, Lucien Baty¹, Jordan Tsague⁵, Jacques Delors Toumansie Mfonkou⁶, Aimé Césaire Momo^{4,7}, Gaël Tchoukeu Kouamen¹, Russo Gianluca⁸, Jules Roger Kuiate⁴, Vittorio Colizzi⁹ and Armand Tiotsia Tsapi^{4*}

¹Immunization and Vaccines Development, World Health Organization, Cameroon

²Department of Public Health, Epidemiology and Health Economics, University of Liege, Liege, Belgium

³Global Health System Solutions, Douala Cameroon

⁴Faculty of Sciences and Technology, Evangelical University of Cameroon, Mbouo, Bandjoun, Cameroon

⁵Faculty of Medicine and Pharmaceutical Sciences, University of Dschang, Dschang, Cameroon

⁶University of Ebolowa, Department of Public Health, Faculty of Medicine and Pharmaceutical Sciences

⁷Faculty of Sciences, University of Bamenda, Bamenda Cameroon

⁸Department of Infectious Diseases, Microbiology and Public Health; University of Rome "La Sapienza", Rome, Italy

⁹Department of Immunology and Biotechnology, University of Rome Tor Vergata, Rome, Italy

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***Corresponding author:** Tsapi AT, Evangelical University of Cameroon, Faculty of Sciences and Technology, Mbouo Bandjoun-Cameroon, Email: tsapi.armand@gmail.com

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ABSTRACT

Introduction: Malaria remains the main cause of consultations in health facilities in Cameroon. On January 22, 2024, the Health Districts of Foubot and Fouban in the West Region of Cameroon began the pilot administration of the malaria vaccine for children under 5 years of age at the age of 6 months. Five months after the launch of this strategy, the 2 health districts involved recorded very low vaccination coverage in AMV1 (17.4%), AMV2 (6.6%) and AMV3 (5.3%). Therefore, assessing the acceptance of the RTS, S/ASo1 malaria vaccine by parents of children under five years of age in the Foubot and Fouban health districts is important.

Methodology: This descriptive, cross-sectional, analytical, community-based study was conducted among households in the Foubot and Fouban health districts in the West Region of Cameroon. Data collection was performed via a semi open questionnaire administered to parents/guardians of children under 5 years of age who were eligible for malaria vaccination to assess their level of knowledge about malaria and their degree of acceptance of having their children vaccinated. The data collected were encoded and processed via Excel 2016 software and then analyzed via R software via the R-cmdr interface, with a statistical significance set at 0.05. Multiple logistic regression was used to analyze the factors influencing the acceptance of the malaria vaccination for their children.

Results: A total of 600 parents/guardians were surveyed. The median age of respondents was 30 years (IQR: 24–36), with 83.39% of participants being female. 60.95% of respondents were married and 64.31% had at least a secondary education. The knowledge levels on malaria (97.17%) and the malaria vaccine (67%) were high. A total of 82.16% of parents were willing to have their children vaccinated, with 79.86% having previously had at least one child hospitalized for malaria. Factors significantly associated with vaccine acceptance included female sex [aOR 0.28 (95% CI: 0.15–0.49)], education [aOR 9.68 (95% CI: 3.16–30.41)], good knowledge of malaria [aOR 0.14 (95% CI: 0.08–0.25)] and good knowledge of the vaccine [aOR 0.13 (95% CI: 0.03–0.45)].

Conclusion: Increasing community communication about vaccines and strengthening the capacity of vaccination service personnel are essential for improving malaria vaccination coverage.

Keywords: Acceptance, RTS.S/ASo1 vaccine, West, Cameroon

1. Introduction

Malaria remains a significant public health challenge in Cameroon, with high transmission rates, particularly in rural and semi-urban areas. It is one of the leading causes of morbidity and mortality in the country, particularly affecting children under five years of age. In response to this ongoing health crisis, the World Health Organization (WHO) recommended the RTS, S/AS01 malaria vaccine in October 2021 for use in children living in high and moderate transmission settings in sub-Saharan Africa¹. In October 2023, a second malaria vaccine, R21/Matrix-M, was recommended for use and added to the WHO's list of prequalified vaccines in December 2023².

Cameroon began deploying the RTS, S/AS01 vaccine on January 22, 2024, targeting 42 health districts with the highest malaria risk. This rollout follows the receipt of vaccine stock and aligns with the country's efforts to enhance its malaria control strategies. The WHO's readiness assessment tools have been used to monitor the implementation of pre-introduction activities at all levels of the health system³.

The malaria vaccination schedule consists of three initial doses spaced one month apart, followed by a fourth dose administered 15 to 18 months after the third. The greatest impact is observed in children who receive all four doses⁴. As of February 22, 2024, one month after the initiation of the vaccination campaign, 13,811 children, including 7,124 (51.6%) girls, received the first dose. However, vaccination coverage for the first dose remains at 37%, with 61.5% of children vaccinated via the fixed strategy. Challenges such as low geographical coverage and poor reporting of vaccination data have hindered progress⁵.

The acceptance of the malaria vaccine among parents of children under five years of age is influenced by several factors, including community engagement, perceptions about vaccine side effects, the quality of care provided by health personnel and the real-time availability of the vaccine⁶. A study by Amin et al. (2023) in Bangladesh found that although 70% of parents were willing to accept the malaria vaccine, only 25% had heard of it, with health personnel being the primary source of information for 48% of participants. The level of knowledge and acceptance of the vaccine was also associated with factors such as rural residence, malaria knowledge and prior experience with malaria testing⁷.

Similarly, a 2024 study by Nyalundja et al. in the Democratic Republic of the Congo reported that 52.6% of parents were in favor of vaccinating their children, with sociodemographic factors such as parental age, residence in semirural areas and

the perceived competence of health personnel significantly influencing vaccine acceptance⁸.

In Cameroon, Njoh et al. found that factors such as a history of severe malaria, awareness of the availability of the malaria vaccine and employment in vaccination services were linked to higher vaccine acceptance, while false rumors and misinformation were major barriers⁹.

In Cameroon's Western region, two districts were selected for the pilot phase of the malaria vaccination program. By June 3, 2024, vaccination coverage was still low, with regional vaccination coverage for the first dose (AMV1) at 17.4%, the second dose (AMV2) at 6.6% and the third dose (AMV3) at 7.3%. Report completeness was also under 50% in both districts¹⁰.

This study aims to assess the factors influencing the acceptance and uptake of the malaria vaccine among parents of children under five in the Western region of Cameroon. It will explore the barriers to vaccine distribution, including logistical challenges and community engagement issues and propose strategies to improve vaccination coverage and acceptance.

2. Materials and Methods

2.1. Study Design

This study was a community-based descriptive cross-sectional study conducted in two health districts (HDs) Foumban and Foubot located in the West Health Region of Cameroon. These districts were selected for the pilot phase of the malaria vaccination (AMV) program due to their high malaria prevalence, particularly among children under five years of age. The goal of this study was to assess parental knowledge about the malaria vaccine and the factors influencing vaccine acceptance.

2.2. Study Population

The study targeted parents/guardians of children under five years old who were eligible for the malaria vaccine in the Foumban and Foubot health districts. Households that did not contain children within the target age group were excluded from the study. The eligibility criteria for the study participants included:

- Parents/guardians of children aged 5 months to 5 years
- Residing in the Foumban or Foubot health districts

The primary outcomes assessed were parental knowledge about malaria and the malaria vaccine, as well as vaccine acceptance.

2.3. Sampling Methods

The sample size was calculated using the Cochran formula, which ensures a sufficient sample size to estimate population parameters with a specified confidence level and margin of error. The formula is as follows:

$$n = \frac{tp^2 * P(1 - P) * N}{tp^2 * P(1 - P) + (N - 1) * y^2}$$

Where:

n = minimum sample size

N = number of children targeted by the malaria vaccination program per health district

P = prevalence of malaria in children under five in the West Region of Cameroon (P = 8.4%)

tp = sampling confidence interval (tp = 1.96)

y = sampling error (y = 5%)

Given the prevalence of malaria data from the DHIS2 health management platform, a sample size of 451 households was calculated. To improve the precision of the estimates, we opted to survey 600 households, with an equal distribution of 300 households each from Fouban and Foubot health districts.

2.4. Data Collection

Data were collected through a semi-structured face-to-face questionnaire administered to parents/guardians of children under five years old. The questionnaires were administered in the participants' homes by trained enumerators. The questionnaires assessed:

Parental Knowledge of Malaria and the Malaria Vaccine: Knowledge about malaria symptoms, transmission, prevention and the malaria vaccine.

Vaccine Acceptance: Whether parents were willing to vaccinate their child and their reasons for accepting or rejecting the vaccine.

The questionnaire was developed in collaboration with health experts to ensure it was culturally appropriate and covered all relevant aspects of malaria vaccination. Key questions included:

Awareness of the malaria vaccine

Sources of information about the malaria vaccine

Willingness to vaccinate children

Perceived benefits and concerns about the vaccine

Perceptions of health worker competency and trust in vaccination services

2.5. Operational Definitions

2.5.1. Vaccine Acceptance: Defined as the willingness of parents/guardians to allow their child to receive the malaria vaccine. This was assessed with the question: "Would you be willing to vaccinate your child against malaria?" Responses were categorized as "Yes" (acceptance) or "No" (rejection).

2.5.2. Parental Knowledge: The level of knowledge about malaria and the malaria vaccine, assessed using a series of questions about malaria transmission, prevention strategies and vaccine benefits. A score greater than 80% of correct answers was considered "good" knowledge.

2.5.3. Socioeconomic Status: Assessed using proxy indicators such as parental education level, employment status and household income.

2.6. Data Analysis

Descriptive statistics were used to summarize quantitative variables (e.g., age, number of children vaccinated) using medians and interquartile ranges. Categorical variables (e.g., knowledge level, vaccine acceptance) were summarized as frequencies and percentages.

Univariate logistic regression was used to identify variables associated with vaccine acceptance, such as: Parental education, Previous malaria experience, Perceived vaccine safety, Socioeconomic status and Sources of information about the vaccine

Only variables that were statistically significant in the univariate analysis were included in the multivariate logistic regression model, to control for potential confounders. The final model included only variables that were significant at $p < 0.05$ and had an adjusted odds ratio (aOR) that differed significantly from 1.0.

All statistical analyses were performed using R version 4.3.1 software.

2.7. Ethical Considerations

This study was approved by the Regional Ethics Committee of the West region (N°0079/31/07/2024/CE/CRERSH-OU/VP). Informed consent was obtained from all participants before data collection. Participants were assured of the confidentiality of their responses and they were free to withdraw from the study at any time.

3. Results

3.1. Sociodemographic characteristics of the participants

The median age of the respondents was 30 years (ranging from 24 to 36 years), with the majority being female (83.39%). Most parents of young children were involved in trade (28.80%) or were employed (28.45%). The most common characteristics among respondents included being married (60.95%), having a secondary education (64.31%) and earning a monthly income of 100,000-150,000 CFA. Additionally, the majority of participants were from Foubot town (51.41%) (see Table 1)

3.2. Knowledge and perceptions of malaria

Given that malaria is endemic in Cameroon, almost all participants (99.82%) were aware of the disease, with a majority (93.46%) identifying mosquito bites as the primary cause. Fever was the most commonly recognized symptom of malaria, reported by 87.10% of respondents, although a small percentage (2.65%) were unaware of the symptoms. Death was considered the main consequence of malaria by 80.04% of participants. The most commonly used protective measures included sleeping under long-lasting insecticide-treated nets (LLINs) (48.41%) and efforts to prevent mosquito breeding (35.87%). Vaccination of children aged 6-24 months was mentioned as a protective method by only 0.18% of respondents (see Table 2).

3.3. Overall level of knowledge about malaria

The level of knowledge about malaria was generally good (97.17%) among most parents. (Figure 1)

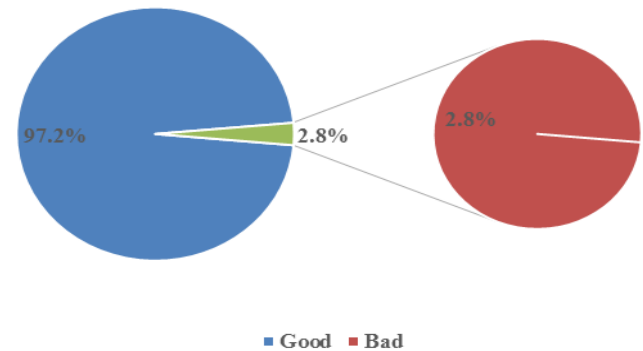
Table 1: Sociodemographic characteristics of the study participants.

Variables	Terms and conditions	Frequency (%)
Parent's gender	Female	472 (83.39)
	Male	94 (16.61)
Parent's profession	Farmer	89 (15.72)
	Trader	163 (28.80)
	Breeder	13 (2.30)
	Religious man	3 (0.53)
	Employee	161 (28.45)
	Unemployed	137 (24.20)
Marital status	Bachelor	125 (22.08)
	Married	345 (60.95)
	Free Union	85 (15.02)
	Widower	11 (1.94)
School level	Not in school	17 (3)
	Primary	108 (19.08)
	Secondary	364 (64.31)
	Superior	77 (13.60)
Place of residence	Foumban Health District	264 (46.64)
	Foumbot Health District	291 (51.41)
	Other	11 (1.94)
Income	Less than 50,000 FCFA	91 (16.08)
	Between 50,000 and 100,000 FCFA	179 (31.63)
	Between 100,000 and 150,000 FCFA	246 (43.46)
	More than 150,000 FCFA	50 (8.83)

Table 2: Parents' knowledge and perceptions of malaria.

Variables	Terms and conditions	Frequency (%)
Having heard about malaria	No	1 (0.18)
	Yes	565 (99.82)
Cause of malaria	Consumption of non-potable water	17 (3)
	Consumption of contaminated food and fruit	19 (3.36)
	Unhealthy environment	1 (0.18)
	Mosquito bite	529 (93.46)
Symptoms of malaria	Asthenia	1 (0.18)
	Headaches	11 (1.94)
	Aching	27 (4.77)
	Fever	493 (87.10)
	Digestive disorders	19 (3.36)
	I do not know	15 (2.65)
Consequence of malaria	Decreased work performance	22 (3.89)
	Death	453 (80.04)
	Hospitalization	75 (13.25)
	I do not know	16 (2.83)
People at risk of malaria	Children under 5 years old	362 (63.96)
	Pregnant women	46 (8.13)
	I do not know	23 (4.06)
	Elderly people	6 (1.06)
	Everyone	129 (22.79)

Method of protection against malaria	Administer the vaccine to children aged 6 to 24 months	1 (0.18)
	Sleeping under a LLIN	274 (48.41)
	Prevent mosquitoes from being born or multiplying	203 (35.87)
	Protect openings with grilles	3 (0.53)
	Use of insecticides	85 (15.02)

**Figure 1:** Overall level of knowledge of participants about malaria.

3.4. Parents' knowledge and perceptions of malaria vaccines

A significant 79.86% of parents reported having had a child hospitalized due to malaria. However, only 26.68% were aware of the existence of the malaria vaccine and 19.79% were unsure about its effectiveness in protecting their children. The most common sources of information about the vaccine were television (35.69%) and healthcare workers (34.45%). Regarding the number of vaccine doses needed for full protection, 28.45% of respondents believed that 2-3 doses were sufficient, while only 3.6% thought four doses were required. Most parents (88.16%) believed that the vaccine alone could protect against malaria, but only 7.77% were aware that the vaccine had no side effects (Table 3).

Table 3: Parents' knowledge and perceptions of the malaria vaccine.

Variables	Terms and conditions	Frequency (%)
Having already had a child hospitalized because of malaria	No	11 (20.14)
	Yes	452 (79.86)
Whether the vaccine exists	No	415 (73.32)
	Yes	151 (26.68)
Thinking that the vaccine can protect your child against malaria	No	27 (4.77)
	Yes	427 (75.44)
	I do not know	112 (19.79)
	A dose	50 (8.83)
Number of doses of vaccine needed to fully protect the child	2 to 3 doses	161 (28.45)
	3 to 4 doses	128 (22.61)
	More than 4 doses	19 (3.36)
	I do not know	208 (36.75)
Vaccine alone is sufficient to protect against malaria	No	67 (11.84)
	Yes	499 (88.16)
Knowing that the vaccine may cause side effects	No	44 (7.77)
	Yes	522 (92.23)
Level of knowledge about the vaccine	Good	371 (65.5%)
	Bad	195 (34.5%)

Channel through which the respondent heard about this vaccine	Community health worker	44 (7.77)
	Friend/Family	29 (5.12)
	Health personnel	195 (34.45)
	Radio	28 (4.95)
	Social networks	68 (12.01)
	Television	202 (35.69)
The fact that health personnel raise awareness about the importance of the vaccine	No	60 (10.60)
	Yes	506 (89.40)
Vaccine acceptability	No	195 (34.45)
	Yes	371 (65.55)
Reason for nonacceptability	Fear of vaccine side effects	359 (63.43)
	Low level of knowledge about the vaccine	77 (13.60)
	Negative impact of social networks/entourage	24 (4.24)
	Lack of awareness of the vaccine	42 (7.42)
	Refusal by spouse	64 (11.31)

3.5. Level of knowledge about the vaccine

Overall, the level of knowledge about the malaria vaccine was good, as 65.55% of the parents had good knowledge. (Figure 2)

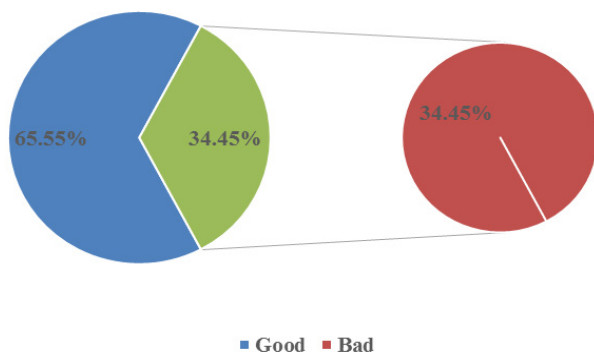


Figure 2: Overall level of knowledge of parents about the vaccine.

3.6. Factors associated with vaccine acceptability by children under five years of age

Tables IV and V below present the univariate and multivariate regression analyses conducted to identify factors associated with vaccine acceptability among parents or guardians of children under five years of age who are eligible for malaria vaccination.

Compared with females, male parents/guardians had a significantly lower probability of accepting the vaccine (OR = 0.31, $p < 0.0001$). This statistically significant association suggests that sex is an important determinant of vaccine acceptability, with females being more likely to accept the vaccine than males.

Education level was also strongly associated with vaccine acceptability. Individuals with primary, secondary or higher education were significantly more likely to accept the vaccine than those with no formal education ($p < 0.0018$). This finding indicates that education plays a critical role in shaping decisions regarding vaccine acceptance, with more educated individuals being more open to vaccination.

In addition, low malaria knowledge was associated with a significantly lower likelihood of accepting the vaccine (OR = 0.11, $p < 0.0001$). Similarly, low vaccine knowledge was also linked to a lower likelihood of vaccine acceptance (OR = 0.04, $p < 0.0001$). These findings highlight that individuals with limited knowledge about malaria and vaccines are less likely to accept the malaria vaccine, suggesting that improving awareness and understanding about both topics could be key to increasing vaccine uptake. (Table IV)

Table 4: Univariate regressions of vaccine acceptance with the study's independent variables

Terms and conditions	OR (95% CI)	P Value	P Global Value
	1.01 (0.97-1.02)	0.9168	0.9168
Masculine VS Feminine	0.31 (0.19-0.51)	<0.0001	<0.0001**
Trader VS Farmer	1.06 (2.92-8.93)	0.853	0.0852
Breeder VS Farmer	1.11 (0.52-2.11)	0.894	
Religious Man VS Farmer	0.41 (0.03-9.05)	0.473	
Employee VS Farmer	1.35 (0.64-2.76)	0.412	
Unemployed VS Farmer	0.57 (0.28-1.09)	0.1	0.074
Married VS Single	0.94 (0.54-1.57)	0.8138	
Free union VS Single	1.60 (0.73-3.72)	0.251	
Widowed VS Single	0.25 (0.07-0.96)	0.0361	
Primary VS Unschooled	6.69 (2.29-20.65)	0.0005	0.0018**
Secondary VS Non-Schooled	7.38 (2.72-21.08)	<0.0001	
Higher VS Unschooled	7.03 (2.30-22.85)	0.0007	0.1728
Fomban VS Other	2.16 (0.45-12.17)	0.269	
Fombot VS Other	1.47 (0.31-5.27)	0.575	0.1587
Between 50,000 and 100,000 FCFA VS Less than 50,000 FCFA	1.64 (0.96-2.86)	0.0708	
Between 100,000 and 150,000 FCFA VS Less than 50,000 FCFA	0.98 (0.54-1.84)	0.9561	
More than 150,000 FCFA VS Less than 50,000 FCFA	0.77 (0.38-1.63)	0.4727	<0.0001**
Bad VS Good	0.04 (0.01-0.13)	<0.0001	
Bad VS Good	0.11 (0.07-0.19)	<0.0001	<0.0001**

After adjusting for the sociodemographic characteristics of the participants and excluding potential confounding factors, multivariate analysis revealed that female sex ($P < 0.0001$), being in school ($P = 0.0015$) and good levels of knowledge about malaria ($P < 0.0001$) and vaccination ($P = 0.0011$) were significantly associated with increased vaccine acceptability. These findings suggest that female participants, those currently in school and individuals with better knowledge of malaria and vaccination were more likely to accept the vaccine. (Table 5)

4. Discussion

The introduction of the malaria vaccine in Africa represents a pivotal step in combating malaria, but its adoption is influenced by a variety of sociocultural, economic and knowledge-related factors. Our study provides important insights into the factors affecting the acceptance of malaria vaccination in Cameroon.

Table 5: Multivariate regressions of vaccine acceptance with univariate significant variables.

Terms and conditions	ORa (95% CI)	P Value	P Global Value
Masculine VS Feminine	0.28 (0.15-0.49)	<0.0001	<0.0001**
Primary VS Unschooled	7.58 (2;26-26.21)	0.0011	0.0015**
Secondary VS Unschooled	9.68 (3.16-30.41)	<0.0001	
Higher VS Unschooled	10.28 (2.89-38.09)	0.0004	
Malaria Knowledge Level Bad VS Good	0.14 (0.08-0.25)	<0.0001	<0.0001**
Vaccine Knowledge Level Bad VS Good	0.13 (0.03-0.45)	0.0034	0.0011**

Our study found that the majority of respondents were female (83.39%), which is consistent with findings from studies in Nigeria and other sub-Saharan African countries where women often make health decisions for children (12). This is in contrast to studies from India, where male respondents predominated¹¹. This discrepancy can be explained by socio-cultural factors, particularly in Africa and more specifically in Cameroon, where many women are housewives due to underemployment and traditional gender roles. In terms of occupation, the majority of parents were either traders (28.80%) or employees (28.45%). This finding differs from those of other studies where all participants were healthcare workers^{8,12,13}. The variation may reflect regional or demographic differences in the socioeconomic structure of the populations studied.

The **level of knowledge** about malaria was found to be high, with 97.17% of respondents demonstrating a good understanding of the disease, including the key factor of mosquito bites as the primary mode of transmission (93.46%). This result is in line with findings from a previous study conducted in Cameroon, in the cities of Douala and Yaoundé, which reported similar levels of awareness¹⁴. Our study also found that fever was the most commonly identified symptom of malaria (87.10%), a result slightly higher than in studies from other regions, such as China, where 53.4% of respondents identified fever as a common symptom¹⁵. This indicates a strong understanding of malaria symptoms in the study area, which may be influenced by the endemic nature of the disease.

Regarding **malaria prevention**, the majority of respondents (48.41%) reported using **long-lasting insecticide-treated nets (LLINs)**, with 35.87% indicating they took measures to prevent mosquito breeding. These results align with other studies in Cameroon, where similar methods of malaria prevention were reported, including environmental sanitation (76.1%) and the use of mosquito nets (69%)¹⁴. These results highlight the ongoing importance of LLINs as a known malaria prevention strategy.

On the topic of the **malaria vaccine**, 65.55% of respondents had heard of it, with 97.2% of those being knowledgeable about the vaccine. This awareness may be due to intensified and long-standing campaigns promoting childhood vaccination. This finding is higher than that from a study in the Republic of Congo, where only 7.26% of participants had heard of the malaria vaccine¹⁴. This knowledge may be due to intensified and long-standing campaigns promoting childhood vaccination¹¹. This discrepancy between our study and the one conducted in India can be explained by differences in methodology. In the Indian study, data were collected from participants via WhatsApp, Facebook and Instagram. This approach may have influenced the

way participants learned about the vaccine, as they were likely exposed to vaccine-related information through social media platforms. This suggests that social media can have a significant impact on individual vaccination decisions, potentially shaping participants' attitudes and behaviors.

The **sources of information** about the vaccine were primarily **television** (35.69%) and **health personnel** (34.45%), which is similar to findings from Nigeria, where respondents primarily received vaccine information from healthcare providers and the media¹². This could be because the population trusts health professionals and relies on them for verifiable health information.

Approximately one-quarter (28.45%) of the respondents believed that 2-3 doses of vaccine are sufficient for immunization against malaria. This result is unfavorable for a WHO study, which revealed that malaria control, especially in endemic areas, is effective. The greatest impact was observed in children who received 4 doses of RTS or S/AS01⁴.

The effectiveness of the vaccine was evident from the respondents, as 75.44% believed that the vaccine could protect their child against malaria. This result is similar to those of other studies conducted in Nigeria, the Republic of the Congo and Cameroon, in which the majority of participants reported that they were aware of the importance of the vaccine^{5,12-14}. This belief may be due to the successes recorded in other childhood vaccination programs, such as the polio vaccination and the fact that populations living in areas with high malaria transmission rates are generally more favorable to vaccination and are directly confronted with the consequences of the disease. Although the acceptance rate of the malaria vaccine is high in the country, strengthening communication around this new vaccine is essential. The rollout was performed in a context that generally involves hesitancy, especially for new vaccines and routine vaccination following coronavirus disease 2019 (COVID-19)^{16,17}.

Finally, we found several **factors associated with vaccine acceptance**. Women were significantly more likely to accept the vaccine than men, a finding consistent with research from the Republic of Congo¹⁴. Education level was another significant factor, with those having higher education more likely to accept the vaccine, mirroring studies from Ethiopia and India^{6,11}. This may be because higher education levels are generally associated with a better understanding of vaccination issues and greater adherence to public health programs.

Additionally, **higher malaria knowledge** and **greater awareness** of the vaccine were associated with increased vaccine acceptance, which aligns with findings from northern Nigeria, where knowledge of malaria and recent experiences with the disease influenced vaccine uptake¹². This could be explained by the fact that a good understanding of malaria, its symptoms and its consequences is an important predictor of vaccine acceptance. Indeed, individuals who perceive malaria as a serious disease are generally more motivated to take steps to protect themselves.

While this study offers valuable insights, there are some important limitations to consider. Because it's a cross-sectional study, it can only show relationships between factors and vaccine acceptance, not cause-and-effect over time. We also focused on just two districts in the West Region of Cameroon, so the findings may not fully reflect vaccine acceptance in other parts of the country, where local health systems and cultural factors could

differ. Lastly, since the data is self-reported, there's a chance that participants may have overstated their willingness to accept the vaccine, especially if they felt pressure to give socially desirable answers. This could lead to an inflated view of actual vaccine acceptance.

Ethics approval

To conduct this study. We obtained the approval of the West Regional Committee of Ethics Research for Human Health. Reference number: N°/0079/31/07/2024/CE/CRERSH-OU/VP

Availability of data and materials

All the data from which the conclusions of this article were drawn are available from the corresponding author A.T.T., preceded by a motivated request by the applicant.

Competing interests

The author(s) declare that they have no financial or personal relationship(s) that may have inappropriately influenced them in writing this article.

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Consent to participate

All participants voluntarily contributed to this study and provided informed consent (written and oral) prior to their participation, ensuring ethical approval throughout the research process.

Consent for publication

Not applicable.

Disclaimer

The views and opinions expressed in this article are those of the author(s) and are the product of professional research. It does not necessarily reflect the official policy or position of any affiliated institution, funder, agency or publisher. The author(s) are responsible for the results, findings and content of this article.

5. Conclusion

The study highlights how factors such as understanding of malaria, awareness of the malaria vaccine, gender and education all play a role in how parents in Cameroon's West Region decide whether to vaccinate their children. While many parents know

about the vaccine, there are still misunderstandings, especially about how many doses are needed for full protection. To boost vaccine uptake, particularly in rural communities, it's important to improve communication through trusted sources like healthcare workers and local media. By addressing concerns and providing clear, accessible information, health authorities can help ensure the success of the malaria vaccine rollout in Cameroon.

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