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Research Article

MATERNAL ATTITUDES TOWARDS CHILDHOOD VACCINATION IN DELTA STATE, NIGERIA

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ABSTRACT

Despite the significant impact of vaccination on reducing child mortality from vaccine-preventable diseases like measles, polio, tuberculosis, and Haemophilus influenzae, vaccine uptake and coverage remain a challenge, particularly in countries like Nigeria. While the government provides free routine vaccination up to age two, many children miss out on essential vaccines beyond this age due to various factors. This study aimed to investigate the attitudes of mothers towards childhood vaccination, particularly beyond the age of two, in Ughelli North Local Government Area of Delta, Nigeria. A cross-sectional study was conducted with 321 mothers, collecting data on their attitudes towards vaccination using a modified, pretested questionnaire administered through an online survey. Descriptive and inferential Chi-square statistics were used to analyse the data. The results revealed that the majority of participants were Urhobo (60.7%), semi-employed (50.2%), and had tertiary education (88.8%). A significant majority (79.4%) had positive attitudes towards vaccination. Ethnicity ($p = 0.026$), employment status ($p = 0.016$), and educational level ($p < 0.001$) were strongly associated with positive attitudes towards vaccination.

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The overall attitudes of mothers in Ughelli North Local Government Area were found to be generally positive. To further enhance positive attitudes towards vaccination among mothers in this area, it is recommended that targeted health promotion strategies be developed. These strategies, which should be replicated in other regions, should leverage various media platforms to reach a wider audience and emphasize the importance of completing the full vaccination schedule for children. Additionally, efforts should be made to enhance access to vaccination services and address socio-demographic disparities that may influence vaccine uptake.

KEYWORDS

Maternal attitudes, Childhood vaccination, Vaccine uptake, Health promotion strategies, Vaccination services, Socio-demographic disparities.

INTRODUCTION

Childhood vaccination remains one of the most crucial public health interventions in reducing childhood mortality worldwide. Vaccination protects children against several life-threatening diseases such as measles, diphtheria, tetanus, pertussis, and polio (WHO, 2021). While vaccination rates have improved globally, particularly due to initiatives such as the Expanded Program on Vaccination (EPI), significant disparities remain in many low- and middle-income countries (LMICs), including Nigeria. Maternal attitudes play a pivotal role in determining whether children receive their scheduled vaccinations. These attitudes, shaped by a wide range of sociocultural, educational, and psychological factors, often serve as key determinants of vaccine acceptance or hesitancy (Bangura et al., 2020).

In Nigeria, where childhood vaccination coverage remains below recommended levels, maternal attitudes are particularly crucial. According to the World Health Organization (WHO) and UNICEF, Nigeria is one of the countries with the highest number of children missing essential vaccines. In 2018 alone, over three million Nigerian children were either under-vaccinated or not vaccinated at all (WHO/UNICEF, 2020). In regions such as Delta

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State, a rapidly urbanizing area with a diverse population, maternal attitudes towards vaccination can significantly impact vaccination coverage and child health outcomes. Exploring these attitudes is critical to understanding the barriers to achieving optimal vaccination rates in this context.

This paper focuses exclusively on maternal attitudes towards childhood vaccination in Delta State, Nigeria. By examining the factors influencing maternal perceptions, beliefs, and decision-making processes surrounding vaccination, the study aims to contribute to the understanding of vaccine hesitancy and its impact on vaccination coverage. It is essential to focus on maternal attitudes, as they are distinct from mere knowledge or practices, reflecting deeper psychosocial and cultural influences on behaviour (Dubé et al., 2013). In doing so, this research highlights the necessity for tailored public health interventions that address not only knowledge gaps but also the attitudinal barriers preventing full vaccination coverage.

The Role of Maternal Attitudes in Childhood Vaccination

Maternal attitudes towards childhood vaccination are often shaped by a complex interplay of factors, including cultural beliefs, religious inclinations, socioeconomic status, and trust in healthcare systems. While knowledge of vaccines is important (Obohwemu, 2024), attitudes offer deeper insight into how and why mothers make decisions regarding their children's health. For instance, a mother may be well-informed about the benefits of vaccines but still harbour concerns about vaccine safety, thereby leading to vaccine hesitancy or refusal (Opel et al., 2011; Obohwemu et al., 2022).

Research on maternal attitudes towards vaccination has identified several recurring themes, including perceived risk of vaccine-preventable diseases, perceived benefits of vaccination, concerns about vaccine safety, and trust in healthcare providers. Mothers who perceive their children to be at a low risk of contracting vaccine-preventable diseases are less likely to prioritize timely vaccination, often delaying or skipping doses (Salmon et al., 2015). Conversely, mothers who trust the healthcare system and believe in the efficacy of vaccines are more likely to adhere to vaccination schedules (Afolabi et al., 2021). These attitudes are further

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influenced by social networks, where misinformation or distrust in vaccines can spread rapidly, leading to community-wide vaccine hesitancy (Smith et al., 2017).

In Nigeria, studies have shown that maternal attitudes are strongly influenced by social, cultural, and religious factors (Obanewa & Newell, 2020). For instance, certain religious or cultural groups may view vaccines as unnecessary or even harmful, believing that natural immunity or divine intervention is preferable to medical interventions. In some cases, mothers may also mistrust the government or international health organizations due to past negative experiences or rumors about vaccine programs (Obohwemu et al., 2022).

Barriers to Positive Attitudes Towards Vaccination in Delta State

In Delta State, maternal attitudes towards childhood vaccination are shaped by a variety of barriers, many of which stem from broader sociocultural and economic challenges. Nigeria is a highly diverse country with over 250 ethnic groups and multiple religious affiliations, each of which can influence maternal attitudes towards vaccination. Some religious groups, particularly in northern Nigeria, have historically resisted vaccination campaigns due to fears that vaccines were part of a conspiracy to harm or sterilize children (Jegede, 2007). Although Delta is more urbanized and diverse, these beliefs persist in certain communities, particularly among migrant populations from northern Nigeria. Mothers from these communities may be hesitant to vaccinate their children if they believe it contradicts their religious teachings or cultural practices (Sanjo-Odutayo, 2023).

Vaccine safety is a common concern among mothers, both globally and in Nigeria. In Delta State, many mothers express fear that vaccines could cause harm to their children, particularly in the form of side effects such as fever, swelling, or allergic reactions (Ophori et al., 2014). In some cases, these fears are exacerbated by misinformation spread through social media or word of mouth. For instance, rumours that vaccines cause infertility or contain harmful substances have led to widespread vaccine hesitancy in certain communities (Olumide et al., 2022).

Trust in healthcare providers plays a crucial role in shaping maternal attitudes towards

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vaccination. In Delta, where healthcare services are often overstretched and underfunded, many mothers report negative experiences with healthcare providers, such as long wait times, poor communication, and lack of respect or empathy (Orofuke et al., 2024). These negative interactions can erode trust in the healthcare system, making mothers less likely to seek out vaccinations for their children. Conversely, when mothers have positive experiences with healthcare providers, they are more likely to trust the information they receive and adhere to vaccination schedules (Salmon et al., 2015).

Some mothers in Delta State believe that vaccines are not effective in preventing disease, particularly if they have witnessed cases of illness in vaccinated children. This perception can lead to vaccine hesitancy, as mothers may question the value of immunizing their children if they believe that vaccines do not work. This belief is often reinforced by a lack of visible disease outbreaks, leading to complacency about the need for vaccination (Bangura et al., 2020). In cases where vaccine-preventable diseases like measles are rare, mothers may be less motivated to vaccinate their children, believing that the risk of contracting the disease is low (Dubé et al., 2013).

Social networks, including family, friends, and community leaders, have a significant impact on maternal attitudes towards vaccination in Delta State. In some cases, mothers may be influenced by the opinions of those around them, particularly if they hold strong anti-vaccine beliefs. For instance, if a mother's social circle includes individuals who are sceptical of vaccines, she may be more likely to adopt similar attitudes, even if she initially believed in the importance of vaccination (Smith et al., 2017). Conversely, positive attitudes towards vaccination within a social network can encourage mothers to immunize their children, particularly if they see others doing the same.

What this paper adds to the body of knowledge

This paper provided a focused exploration of maternal attitudes as distinct from knowledge or practices, emphasizing the psychological, cultural, and social factors that influence mothers' decisions about childhood vaccination. While much of the existing research on vaccination coverage in low- and middle-income countries has focused on maternal knowledge or logistical barriers to vaccine access, this paper addresses

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the deeper attitudinal factors that underlie vaccine hesitancy or acceptance.

This contribution is particularly valuable for several reasons. First, by concentrating on Delta State, Nigeria—a highly urbanized, diverse region facing unique vaccination challenges—the paper sheds light on the role of cultural, religious, and social influences on maternal decision-making. It highlights how misinformation, cultural beliefs, and distrust in healthcare systems interact to shape mothers' attitudes towards vaccines. Additionally, the paper's focus on trust in healthcare providers and the role of social networks offers new insights into how interpersonal and community dynamics can influence vaccine-related behaviours.

Another key contribution is the emphasis on the need for targeted interventions that address attitudinal barriers, such as community-based education and leveraging social media for accurate messaging. This focus on attitude-specific interventions moves beyond the traditional approach of merely addressing knowledge gaps, suggesting that public health efforts must engage more deeply with maternal concerns, perceptions, and trust issues.

Furthermore, the paper fills a gap in the literature by examining maternal attitudes toward vaccination in a Nigerian urban context, as previous research has often concentrated on rural or national-level analyses. This localized approach helps in understanding how specific socio-cultural factors play out in urban settings, where healthcare access is relatively higher, but vaccine uptake can still be hampered by negative attitudes.

Thus, the paper adds a nuanced understanding of maternal attitudes to the broader discourse on vaccination uptake, offering practical insights for designing culturally sensitive and community-driven interventions to enhance vaccination rates in Delta State and other similar settings.

METHODOLOGY

This study investigated factors influencing maternal knowledge of childhood vaccination in Ughelli North Local Government Area, Delta State, Nigeria. A semi-structured questionnaire, adapted from an earlier study by Idowu, Obohwemu & Iyevhobu (2024), was administered to a purposively selected sample of mothers in the area. The questionnaire focused

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on evaluating the mothers' knowledge of vaccination schedules, the benefits of vaccines, and potential side effects. Additionally, demographic data such as ethnicity, education level, and employment status were collected to assess the relationship between these factors and maternal vaccination knowledge.

Research Design

A cross-sectional study design was utilized to collect primary data from mothers with children within the recommended vaccination schedule. The survey gathered demographic information and variables related to vaccination attitudes and perceptions. Descriptive statistics were used to present the characteristics and experiences of the respondents, while bivariate analysis was conducted to identify associations between socio-demographic factors and vaccination knowledge.

Study setting

This study was conducted in Ughelli North Local Government Area (LGA) of Delta State, Nigeria. Ughelli North LGA, the headquarters of Ughelli, is a prominent region in Delta State. The LGA covers approximately 818 square kilometers and has an estimated population of 388,191 according to recent statistics (National Bureau of Statistics, 2023). A semi-urban environment, Ughelli North is one of the 25 LGAs in Delta State (Agaja & Unueroh, 2012).

Ughelli North LGA comprises several towns and villages, including Afiesere, Ododegho, Ofuoma, Agbarha, Owheru, Evwreni, Ogor, Agbarho, and Orogun (Ekeh, 2007). The area is predominantly inhabited by the Urhobo ethnic group, though it also hosts a mixture of other tribes such as the Igbos and Edos (Ogbeide, 2016), contributing to its rich cultural tapestry.

The residents of Ughelli North benefit from a range of healthcare services provided by both government and private entities. The LGA is home to several primary healthcare centers distributed across its towns and villages, providing essential health services, including vaccination programs (Agaja & Unueroh, 2012; Delta State Ministry of Health, 2023).

Ughelli North's proximity to Warri, a major commercial hub in Delta State, enhances its accessibility and connectivity (Warri Chamber of Commerce and Industry, 2023). The region's infrastructure includes schools, a general hospital, and a local government secretariat,

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making it a suitable setting for various research studies (Ekeh, 2007). However, like many other LGAs, Ughelli North lacks comprehensive data on the knowledge, attitude, and practice of mothers regarding childhood vaccination, highlighting the need for further research in this area (NITAG, 2023).

Study Population

The study targeted mothers with children aged 2 years and above, residing in Ughelli North LGA, Delta State. Participants were recruited via online platforms, such as Facebook, Instagram, and YouTube. Inclusion criteria required digital literacy and residency in Ughelli North LGA. Consent was obtained through the data collection tool, which also gathered demographic data and information on vaccination knowledge, including awareness of vaccines sourced "out-of-pocket." These data were then subjected to statistical analysis.

Sampling Approach

The study evaluated the knowledge, attitudes, and practices of mothers in Ughelli North LGA regarding the vaccination of their children aged 2 to 10 years. A purposive non-probability sampling method was employed due to the unique nature of the target population (Ames et al., 2019). Eligible mothers were identified, consented, and administered semi-structured questionnaires. The sample size was calculated beforehand using appropriate statistical methods.

Eligibility Criteria

Inclusion criteria for the study were: mothers whose children met the age range of 2–10 years, who resided in Ughelli North LGA, were digitally literate, and who provided consent. Mothers who did not meet these criteria, such as those outside the study area, with children not within the age range, or lacking digital literacy, were excluded.

Sample Size

A sample size of 420 was calculated using Cochrane's (1977) formula for studying a single proportion. A prevalence rate of 51.0% from a 2019 study on maternal vaccination knowledge in Lagos (Adefolalu et al., 2019) was used, allowing for a 10% non-response rate to account for attrition.

Sample Recruitment

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Participants were recruited between April and June 2024, with the survey link, participant information, consent form, and questionnaire distributed through social media platforms and groups. A Google advertisement campaign was launched to further promote the study, and eligible participants were able to access the survey link. Participants had to agree to participate by clicking "yes" on the consent form before proceeding to the questionnaire.

Data Analysis

Data analysis was performed using IBM SPSS version 28.0 (IBM Inc., Chicago, USA). Descriptive statistics were used to describe demographic variables and vaccination awareness levels. Inferential statistics, specifically Chi-square tests, were used to examine the relationship between maternal knowledge and demographic variables. The data, categorized into nominal and ordinal responses, were coded numerically and analysed using Pearson's Chi-square test, with a significance level set at $p < 0.05$.

Data Management

Data collected through Survey Monkey was filtered to remove responses that did not meet the inclusion criteria, coded, and analysed using SPSS version 28.0. Responses to "Yes" or "No" questions were scored as "1" or "0," respectively, while multiple-choice and open-ended questions were scored accordingly. Knowledge scores were calculated, and knowledge levels were categorized as "poor" (<50%), "fair" (50-69%), or "good" (≥70%). Descriptive statistics, including frequency distributions for categorical variables and means with standard deviations for continuous variables, were computed. Bivariate analyses were conducted using Chi-square or Fisher's Exact Test where appropriate, with a two-tailed p-value < 0.05 considered statistically significant.

Results

Sociodemographic Characteristics of Respondents

A total of 321 respondents (mothers) were included in the analysis, giving a response rate of 76%. The mean age of the respondents was 33.5 ± 5.8 years, with the youngest being 21 years old and the oldest 51 years. The mean age of their children was updated to 5.2 ± 2.1 years. In terms of the age distribution, 64.2% (n = 206) of the

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respondents were aged 31–40 years, 25.9% (n = 83) were aged 21–30 years, and 9.9% (n = 32) were aged above 40 years. For the children, 57.3% (n = 184) were 5 years old or younger, while 42.7% (n = 137) were over 5 years old (see Table 1). Regarding ethnicity, the majority were of Urhobo descent (60.7%, n = 195), Isoko (21.5%, n = 69), Itsekiri (9.6%, n = 31) and Others (8.2%, n = 26). Employment status showed that 50.2% (n = 161) were semi-employed, 43.0% (n = 138) were employed, and 6.8% (n = 22) were unemployed. For education level, 88.8% (n = 285) of the respondents had attained tertiary education, 8.1% (n = 26) had secondary education, and 3.1% (n = 10) had primary education.

Table 1: Sociodemographic Characteristics of Respondents

Characteristic	Frequency (n)	Percentage (%)	Mean ± SD	Range
Age (years)			33.5 ± 5.8	21-51
21-30	83	25.9		
31-40	206	64.2		
>40	32	9.9		
Child's Age (years)			5.2 ± 2.1	
≤5	184	57.3		
>5	137	42.7		
Ethnicity				
Urhobo	195	60.7		
Isoko	69	21.5		
Itsekiri	31	9.6		
Others	26	8.2		
Employment Status				
Semi-employed	161	50.2		
Employed	138	43		
Unemployed	22	6.8		
Education Level				
Tertiary	285	88.8		
Secondary	26	8.1		
Primary	10	3.1		

Respondents' Attitudes towards Childhood Vaccination

Mothers' attitudes towards childhood vaccination were measured using a 5-point Likert scale, ranging from strongly disagree (1) to strongly

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agree (5). To simplify the analysis, responses were grouped into three categories: agree (score of 3 or above), neutral (score of 2), and disagree (score of 1). As shown in Table 2, the majority of respondents (79.1%, n = 254) agreed that childhood vaccination is necessary, while 12.1% (n = 39) were neutral and 8.7% (n = 28) disagreed.

Regarding the completion of the vaccination schedule, 79.8% believed that healthy children should be vaccinated to prevent diseases, 12.2% were neutral, and 8.1% saw no need to complete the vaccination schedule. A significant majority (85.7%) supported the idea that all vaccination services should be free, with only 4.4% expecting out-of-pocket payments. Furthermore, 53.3% of respondents disagreed with the statement that 'vaccinations are not 100% effective,' while 26.8% were undecided, and 19.9% agreed.

These findings underscore the generally positive attitude of mothers towards childhood vaccination, although concerns about vaccine effectiveness and affordability remain.

Table 2: Mothers' Attitudes towards Childhood Vaccination (N = 321)

Variable	Agree (%)	Neutral (%)	Disagree (%)
Vaccination for children is very necessary	254 (79.1)	39 (12.1)	28 (8.7)
It is compulsory to complete vaccination for children	256 (79.8)	39 (12.2)	26 (8.1)
Vaccination should be discontinued if the child is healthy	24 (7.5)	36 (11.2)	261 (81.3)
All vaccinations should be free	275 (85.7)	32 (10.0)	14 (4.4)
Vaccinations are not 100% effective	64 (19.9)	86 (26.8)	171 (53.3)
The clinic staff was helpful during vaccination	225 (70.1)	70 (21.8)	26 (8.1)
Waiting time discouraged you from completing vaccination	110 (34.3)	90 (28.0)	121 (37.7)
Finding information about vaccination was difficult	80 (24.9)	76 (23.7)	165 (51.4)
Availability of vaccines was a problem	69 (21.5)	61 (19.0)	191 (59.5)

A notable 70.1% of mothers indicated that healthcare staff positively influenced their attitude towards vaccination, while only 8.1% disagreed and 21.8% were indifferent. Moreover, 34.3% felt that long waiting

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times affected their willingness to vaccinate their children, while 37.7% did not consider waiting times a significant deterrent.

Furthermore, 59.5% of mothers disagreed with the statement that availability of vaccines was a problem, suggesting that most mothers in the study had access to vaccines. However, 21.5% believed that availability was indeed an issue, and 19.0% were neutral on the matter. Access to information about vaccination was another concern, with 24.9% reporting difficulty in obtaining relevant information.

Overall, 20.9% of respondents exhibited a poor attitude towards childhood vaccination, while 79.1% had a good attitude, as illustrated in Figure 1.

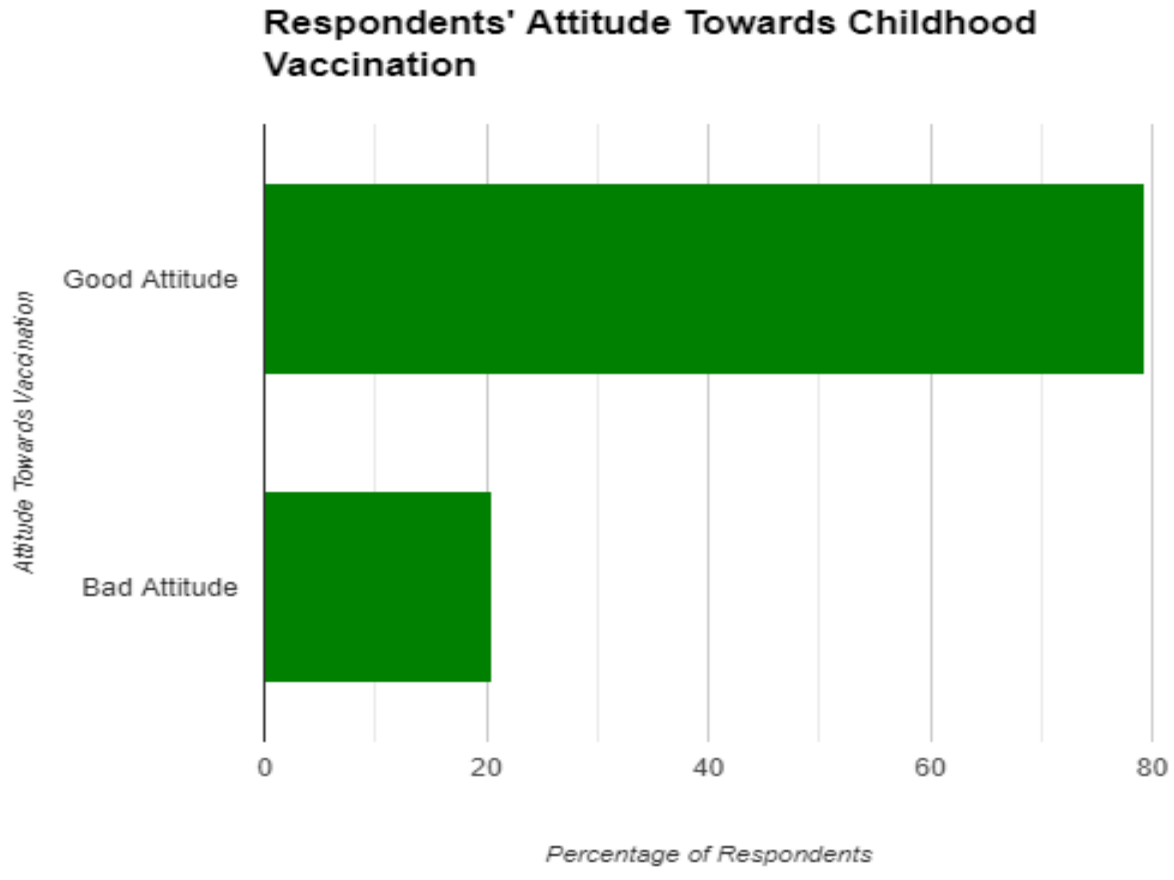

Figure 1: Mothers' Attitudes Towards Childhood Vaccination

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Factors Associated with Respondents' Attitudes Towards Childhood Vaccination

Bivariate analysis was conducted to examine potential associations between attitudes towards childhood vaccination and knowledge, as well as socio-demographic characteristics (Table 3). Among age groups, 75.1% of respondents aged 21-30 years, 81.3% aged 31-40 years, and 74.2% above 40 years exhibited positive attitudes towards childhood vaccination. However, no significant association was found between respondents' ages and their attitudes ($p = 0.413$).

Similarly, there was no significant association between the child's age and the mother's attitude towards vaccination ($p = 0.116$). Among respondents with children under five years of age, 76.4% had a positive attitude, while 83.8% of those with children above five years also exhibited positive attitudes.

Knowledge level was also not significantly associated with attitude ($p = 0.086$). Among mothers with good knowledge of vaccination, 86.9% displayed a positive attitude, while 77.3% of those with poor knowledge still demonstrated good attitudes towards vaccination.

Conversely, ethnicity ($p = 0.026$) and employment status ($p = 0.016$) showed significant associations with attitudes. For example, 82.9% of Urhobo, 71.0% of Isoko, and 61.4% of Itsekiri respondents exhibited positive attitudes towards vaccination. Unemployed mothers were more likely to have poor attitudes compared to employed mothers (75% vs 19.9%).

Educational status was also strongly associated with attitude ($p < 0.001$). Women with tertiary education were significantly more likely to have poor attitudes (82.5%) compared to those with secondary education or less (43.5%).

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Table 3: Association between Socio-Demographic Characteristics and Attitude (N = 321)

Variable	Good Attitude (%)	Poor Attitude (%)	Chi-square	p-value
Age-group (years)				
21-30	55 (75.1)	18 (24.9)	1.766	0.413
31-40	178 (81.3)	41 (18.7)		
>40	19 (74.2)	7 (25.8)		
Child's age (years)				
≤5	133 (76.4)	41 (23.6)	2.477	0.116
>5	119 (83.8)	23 (16.2)		
Ethnicity				
Urhobo	201 (82.9)	41 (17.1)	7.298	0.026*
Isoko	37 (71.0)	15 (29.0)		
Itsekiri	11 (61.4)	7 (38.6)		
Employment status				
Unemployed	1 (25.0)	3 (75.0)	FET**	0.016*
Employed	247 (80.1)	61 (19.9)		
Education level				
Secondary & below	15 (56.5)	11 (43.5)	FET**	<0.001*
Post-Secondary	52 (17.5)	245 (82.5)		
Knowledge				
Good	10 (13.1)	66 (86.9)	2.955	0.086
Poor	56 (22.7)	191 (77.3)		

***Statistically significant at p <0.05, Good Knowledge (Good and Fair) **FET: Fisher's Exact**

Summary of Findings

Among the 321 women surveyed, the mean age was 34.5 ± 5.3 years, and their children had a mean age of 5.4 ± 2.3 years. A majority of respondents were of Urhobo ethnicity (77.3%) and had tertiary education (92.1%). Despite low knowledge of vaccination (76.9% with poor

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knowledge), 79.1% exhibited a positive attitude towards childhood vaccination.

No significant association was found between socio-demographic characteristics like age and knowledge level and attitude ($p > 0.05$). However, attitude was significantly associated with ethnicity, employment status, and educational level ($p < 0.05$). Therefore, while knowledge may not directly influence attitudes, cultural and socio-economic factors do play a significant role in shaping maternal attitudes towards childhood vaccination.

Discussion

As this study has shown, maternal attitudes toward childhood vaccination are shaped by a variety of factors, which can significantly impact vaccine uptake and adherence to vaccination schedules. Attitudes encompass emotional responses, beliefs, and perceptions regarding vaccines, and they may not always align with objective knowledge about vaccines. These attitudes influence a mother's decision to initiate and complete the vaccination process for her child. Negative attitudes, particularly vaccine hesitancy, are often driven by fears of vaccine side effects, cultural and religious beliefs, and mistrust of healthcare systems (Olusola et al., 2021). In Delta State, Nigeria, where vaccination programs aim to reduce the burden of vaccine-preventable diseases (VPDs), understanding maternal attitudes is critical to improving vaccination coverage.

Factors Influencing Maternal Attitudes

Several factors contribute to the development of maternal attitudes towards vaccines, including trust in the healthcare system, perceptions of vaccine safety, cultural and religious influences, and experiences with previous vaccinations. According to Eze et al. (2021), maternal trust in healthcare providers plays a central role in shaping attitudes. When healthcare workers are perceived as knowledgeable and trustworthy, mothers are more likely to hold positive attitudes toward vaccines. Conversely, mistrust of healthcare systems—often rooted in past negative experiences or widespread misinformation—can lead to scepticism or outright refusal of vaccination (Bangura et al., 2020).

Fear of vaccine side effects is another powerful driver of negative attitudes. Many mothers in

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Ughelli express concerns about the safety of vaccines, particularly regarding immediate side effects such as fever, pain, or swelling. In some cases, these concerns are exacerbated by anecdotal reports of adverse reactions within their social networks. Studies have shown that such fears can lead to delays in vaccination or avoidance of certain vaccines altogether, even when mothers acknowledge the benefits of vaccination (Ndwandwe et al., 2021).

Cultural and religious beliefs also play a significant role in shaping maternal attitudes. In diverse, multi-ethnic regions such as Delta, where various cultural and religious groups coexist, attitudes toward vaccination can differ markedly. For example, some religious communities may discourage vaccination based on beliefs that vaccines interfere with natural immunity or divine will (Obohwemu et al., 2022). These beliefs can foster hesitancy or refusal, particularly if community leaders or elders promote anti-vaccine messages.

Attitudes and Vaccine Hesitancy

The concept of vaccine hesitancy, defined as the delay in acceptance or refusal of vaccines despite the availability of vaccination services, is closely linked to maternal attitudes. Vaccine hesitancy exists on a continuum, ranging from outright refusal to acceptance with varying levels of concern. In Lagos, vaccine hesitancy has been identified as a significant barrier to achieving optimal vaccination coverage. A study by Idowu, Obohwemu & Iyevhobu (2024) found that mothers who expressed concerns about the safety and necessity of vaccines were less likely to complete the full vaccination schedule for their children. This hesitancy was particularly pronounced for newer vaccines, such as the rotavirus and pneumococcal vaccines, which were perceived as less familiar or unnecessary.

Vaccine hesitancy is not solely a product of misinformation or lack of knowledge. It often stems from a complex interplay of individual beliefs, social influences, and emotional responses (Obohwemu et al., 2022). Mothers who hesitate to vaccinate may do so out of a desire to protect their child from perceived risks, even when those risks are not supported by scientific evidence (Dube et al., 2013). As such, addressing vaccine hesitancy requires more than simply providing information; it necessitates a deep engagement with the underlying attitudes and concerns that shape maternal decision-making.

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Maternal attitudes toward vaccination have a direct impact on vaccine uptake and, consequently, vaccination coverage in Delta. Negative attitudes, including fear of side effects, mistrust of vaccines, and cultural resistance, contribute to delays in vaccination and incomplete vaccination schedules (Olusola et al., 2021). This, in turn, leaves children vulnerable to VPDs, undermining public health efforts to control outbreaks of diseases such as measles, polio, and diphtheria.

Positive maternal attitudes, characterized by trust in healthcare providers and a recognition of the benefits of vaccines, are associated with higher rates of vaccine adherence. In Ughelli, mothers who hold favourable views of vaccines and have confidence in the healthcare system are more likely to ensure that their children receive all recommended doses, including booster vaccines administered after infancy. This underscores the importance of fostering positive attitudes through effective communication and public health interventions.

Addressing Negative Attitudes and Vaccine Hesitancy

To effectively improve vaccination coverage in Ughelli, it is imperative to address the underlying negative maternal attitudes that contribute to vaccine hesitancy. Public health strategies must extend beyond the dissemination of factual information to engage with the emotional and social dimensions of vaccine decision-making.

One of the most effective approaches is to foster trust between mothers and healthcare providers. Research demonstrates that when mothers perceive healthcare professionals as competent, caring, and trustworthy, they are more likely to accept vaccines (Olusola et al., 2021). Training healthcare providers to communicate effectively and empathetically with mothers can help alleviate concerns about vaccine safety and efficacy. By actively listening to mothers' fears and addressing them in a respectful and non-judgmental manner, healthcare providers can foster trust and build positive relationships.

Given the diverse cultural and religious landscape of Ughelli, it is essential to tailor health promotion efforts to the specific beliefs and values of different communities. Engaging community

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leaders, including religious figures, as advocates for vaccination can help shift negative attitudes within their respective groups (Obohwemu et al., 2022). By incorporating culturally appropriate messaging and addressing specific concerns, public health campaigns can promote positive attitudes toward vaccination and increase acceptance rates.

Addressing the fear of vaccine side effects is another crucial step in improving vaccination coverage. Many mothers in Ughelli cite this fear as a reason for delaying or refusing vaccines. Public health campaigns can help mitigate these fears by providing clear and accurate information about the risks and benefits of vaccines. Healthcare providers should be trained to explain the normal side effects of vaccines, such as mild fever or swelling, and reassure mothers that these reactions are typically short-lived and far less dangerous than the diseases vaccines prevent (Eze et al., 2021).

Leveraging social networks is another effective strategy for promoting positive attitudes toward vaccination. Mothers often rely on their social networks for advice and validation, particularly when making decisions about their children's health. Public health campaigns that utilize social networks, such as peer education programs or community-based health ambassadors, can help counter the spread of misinformation and foster vaccine acceptance. By enlisting trusted community members to share accurate information and dispel myths, these programs can create a positive ripple effect within social networks, leading to increased vaccine uptake.

Conclusion

Maternal attitudes towards childhood vaccination in Delta State are shaped by a variety of factors, including cultural beliefs, concerns about vaccine safety, trust in healthcare providers, and the influence of social networks. Cultural beliefs can significantly influence maternal attitudes. In some communities, traditional practices and misconceptions about vaccines can lead to reluctance or refusal to vaccinate children. Public health campaigns that engage with community leaders and use culturally sensitive messaging can help to dispel myths and promote the benefits of vaccination. Concerns about vaccine safety are another critical factor. Misinformation and fear of potential side

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effects can deter mothers from vaccinating their children. Providing clear, evidence-based information about the safety and efficacy of vaccines, as well as addressing specific fears and misconceptions, can build confidence in the vaccination process. Trust in healthcare providers also plays a vital role. Mothers are more likely to follow vaccination schedules if they have a positive relationship with their healthcare providers and trust their advice. Training healthcare workers to communicate effectively and empathetically with parents can strengthen this trust and encourage adherence to vaccination recommendations. The influence of social networks cannot be underestimated. Mothers often rely on advice and experiences shared by family, friends, and community members. Leveraging these networks to spread positive messages about vaccination can create a supportive environment that encourages vaccine uptake. These attitudes play a crucial role in determining whether children receive their scheduled vaccinations and addressing them is key to improving vaccination coverage in the region. By focusing on tailored interventions that address the specific concerns and barriers faced by mothers, public health officials can enhance vaccination coverage, reduce vaccine hesitancy and increase the uptake of life-saving vaccines. Ultimately, improving maternal attitudes towards vaccination will contribute to reducing the burden of vaccine-preventable diseases and improving child health outcomes in Delta State.

CONFLICTS OF INTEREST

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(2024) whose previous work on childhood vaccinations in Lagos State, Nigeria proved useful.

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