

Factors Influencing Knowledge and Attitude of Mothers Towards Immunization of Children Under-Five Years in Farato, Gambia

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Abstract

Globally, immunization coverage dropped from 86% in 2019 to 83% in 2020. An estimated 23 million children under one year did not receive basic vaccines, which is the highest number since 2009. Thus, this study aimed at identifying factors influencing the knowledge and attitude of mothers of under-five children towards immunization in Farato, The Gambia. A descriptive cross-sectional study was conducted in the peri-urban community of Farato. A sample of 132 mothers were conveniently sampled and interviewed using a structured questionnaire. Descriptive statistics such as percentages, frequencies, and proportions were used to present the results of this study. The study revealed a low level of knowledge of mothers towards immunization. About 25% of mothers cannot clearly explain immunization; 23% knew that the first vaccine dose should be administered to a child at birth or soon after, and 60% were found to be unaware if their children were immunized. This indicates that the concept of immunization is not even clear to mothers and also showcased inadequate knowledge. However, 70% highlighted that immunization prevents infections and enhances child survival. Inadequate knowledge about immunization, literacy and education level, occupation of mothers, inadequate information from health workers, and limited information among mothers were major influencing factors to drop-out of immunization uptake. The study suggests that mothers need to be taught what immunization is about and its importance to children. At health facilities and clinic sites, health workers need to continue communicating to mothers on the importance of immunization to enlighten them about immunization.

Keywords: *Attitude, Farato, Influencing factors, Knowledge, Mothers, and children under five years.*

Introduction

Globally, immunization coverage dropped from 86% in 2019 to 83% in 2020 [1]. An estimated 23 million children under one year did not receive basic vaccines, which is the highest number since 2009 [1]. In 2020, the number of completely unvaccinated children increased by 3.4 million [1, 2]. In Africa, for every additional COVID-19 deaths as a result of SARS-CoV-2 infections acquired during child vaccination visits, 84 deaths could be averted through sustained childhood vaccination program [3]. Thus, there is an increase benefit-risk ratio for households with vaccinated children in Africa [3]. High routine

immunization coverage epitomizes disease prevention, outbreaks control, and enhanced child survival and development, thus averting 4 million deaths every year [4]. Achieving this has remained a huge challenge in many under-developed and developing nations especially in Africa thus, resulting in rising cases of vaccine-preventable diseases (VPDs); 30 million children under five years still suffer from vaccine-preventable diseases every year in Africa [5, 6]. Parental decisions about vaccinations for their children fall into several kinds. They range from outright refusal of all immunizations, premeditated delay, or selective absence, to complete compliance with the comprehensive vaccination schedule [7]. To

accomplish high immunization coverage of above 90%, understanding the importance of immunization and positive attitudes of care seekers, especially mothers with children less than five years, is critical in ensuring that the desired coverage are attained. This is not the case in most parts of Africa, as immunization coverage has stagnated in many countries. The African Region still lags behind other regions of the world in access to vaccines [4]. A low level of awareness on vaccines culminates in misconceptions resulting in gross vaccine hesitancy and or refusal [8]. This has seriously undermined countries efforts to increase immunization performance to seize the chain of transmission of vaccine-preventable diseases [9].

Immunization coverage was 77 percent in the WHO-AFRO region in 2014, with a 90 percent prevalence at the state level in up to 18 countries [10]. However, immunization coverage has stayed at 72% in Sub-Saharan Africa for the last five years, while almost 31 million children under the age of five die each year from vaccine-preventable diseases [11]. Numerous immunization programs have advanced in underdeveloped nations, although the prevalence in some places remains stagnant. A significant number of children do not finish their immunization schedules due to a variety of causes, including mothers/caregivers, limitations, and other confounding variables [12]. Mothers have a high level of awareness and favorable attitudes toward childhood immunization, according to studies [13-15]. However, a study published in 2019 [16] reported that mothers lacked knowledge and attitudes toward immunization exercises and found no significant correlation between demographic and socioeconomic factors and attitudes toward these activities. Sarfaraz et al. 2017 found a substantial difference in mothers' knowledge, attitude, and perspective of child health from 2-4 in pre-intervention to 10-12 in post-intervention [17]. Inadequate vaccine services and caregiver mobility have resulted in

children receiving insufficient vaccination [18]. Additionally, the mother's level of education, household income level, and walking distance to clinic facilities contributed to coverage gaps [15, 19].

The government of The Gambia has made several efforts to improve child health care at large. A recent study in the rural Gambia revealed that childhood vaccination uptake to achieve all the required doses was 66% [20]. At the same time, antigen-specific coverages were remarkably different across vaccines such as BCG, Polio, Penta 3, Measles-rubella, and yellow fever. Both caregivers/mother's level of awareness, mothers/caregiver's occupation, family size, and occupation of child's father were determinants of vaccination coverage for children in rural Gambia [15, 20]. Despite these efforts, there is still a problem where mothers do not have enough knowledge and awareness to help them understand immunization [4]. Since the Gambia register its first COVID-19 case in March 16, 2020, childhood immunization coverage became a very sensitive issues especially in rural settings [21]. Generally, no study in the Gambia has been conducted to assess the factors leading to the poor attitude of mothers towards immunization.

Thus, this study aims to identify factors influencing the knowledge and attitude of mothers of under-five children towards immunization in Farato. Specific study objectives were to determine the present immunization status of under-five children; to assess the current level of knowledge and attitude of mothers of under-five and its influence on their immunization. This study is among the foremost studies that had looked explicitly into mother's or caregiver's awareness of their under-five immunization status in the Gambia.

Materials and Methods

A descriptive community-based cross-sectional study design was used to conduct this study in peri-urban community of Farato.

Quantitative data was collected from mothers of children under-five years. Mothers were without their children's Infant Welfare Card were excluded from the study.

Sample Size Determination and Selection

The study sample size was calculated using the Cochran formula as shown below:

$$N = \frac{ZP(1-P)}{E}$$

Where:

N = Sample size.

P = The proportion of mothers who are aware and have knowledge on childhood immunization which is 10%.

E = Maximum error of the study, which is 0.05.

Z = Standard normal deviation that corresponds to 5% level of statistical significance i.e:1.96.

$$N = \frac{1.962 \times 0.1(1 - 0.1)}{0.052}$$

Thus, N=132.4.

Therefore, the sample size for this study was 132 participants. A convenient sampling technique was used to select mothers for this study. It was done across each of the wards in the community of Farato, Kombo South District, West Coast Region of The Gambia.

Data Collection Tools

A structured questionnaire was designed, pre-tested, and validated prior to the actual data collection phase of the study. The tool was written in English Language and translated into the local languages that is most convenient for the mothers by the research assistants. All interviews were conducted in local languages such as Mandinka, Fula, and Wolof. Before the commencement of data collection, the translated tool was pretested on maternal mothers in another community within Kombo South District. Reliability was determined through the computation of Cronbach's Alpha

test at 0.81. The interviews lasted for 10 to 20 minutes. Each administered questionnaire was immediately crosschecked for completeness, accuracy, content clarity and comprehensiveness throughout the interview processes.

Data Analysis

The data were analyzed using SPSS version 25.0. A univariate analysis such as descriptive statistics were presented in frequency and percentage to explore the study variables explicitly. Cross-tabulation was also done to understand the nexus between outcome and independent variables.

Ethical Consideration

An ethical clearance was sought from the relevant Institutional Review Boards prior to the implementation of the study. Furthermore, permission was also granted from the Regional Health Directorate and the village Alkalo. At the village level, heads of households were informed of the study, and each study participant had to sign or thumbprint the consent form prior to their participation. Women were recruited voluntarily and reserved the right to stop or withdraw from the study at any stage.

Results

The findings revealed that there exists an inadequate knowledge of mothers on immunization in Farato. 25% of mothers interviewed cannot clearly explain immunization. Only 23% knew that the first vaccine dose should be administered at birth or soon after. Likewise, 30% of the respondents said a child should be vaccinated twice to be fully protected. 67% cannot recall the age at which their child received the measles vaccine. Also, 60% said they had not immunized their child even though they were immunized and recorded on clinic cards, and 50% of the respondents were unable to mention any of the vaccine-preventable diseases (VPDs). This indicates inadequate knowledge on

immunization, and it also shows that the concept of immunization is not fully understood. However, 70% highlighted that immunization prevents diseases and enhances child survival.

The findings in Figure 1 shows the respondents' age groups, from 18 - 25 and 26 – 35 years, both at 25%, while the highest was 35-45 years at 50%. It is always important to make sure that we know the age groups to see

the number of mothers who have more knowledge about immunizations. The study revealed that mothers who were married (66%) had 2 -3 children, separated mothers were 33%, and they all had one child each, while those that were divorced mothers were 33%, and they all had 3+ children, as shown in Table 1. The findings have shown that mothers with 2-3 children or more failed to attend clinics routinely.

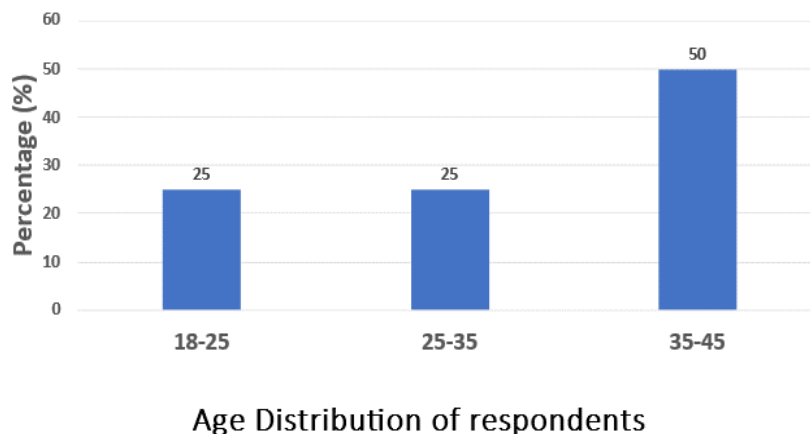


Figure 1. Age Distribution of the Respondents

Table 1. Number of Children vs Marital Status Cross Tabulation

Number of children	Marital Status		
	Married	Separated	Divorced
1	0	33	0
2-3	66	0	0
3+	0	0	33
Total	66	33	33

A cross-tabulation of occupation and level of education was illustrated in Table 2. According to the respondents, it was recorded that 66% were housewives who mostly stay at home to look after household activities. They do not give much attention to immunization, limiting their knowledge on the concept of immunization. Only 10% were reported to civil servants, while about 36% of these mothers were casual employees with relatively no formal education. In terms of their

understanding on the concept of immunization, 25% reported the concept to just taking children to the clinic/hospital, while the remaining 75% revealed that it is the vaccination of the children, as shown in Figure 2. Furthermore, only one-fifth (20%) understand that immunization helps the children to grow healthy, and 80% asserted that it protects children against infections, as indicated in Figure 3.

Table 2. Occupation and Level of Education Cross-tabulation

Occupation	Level of education		Total
	No formal education	Secondary	
Housewife	66	0	66
Civil servant	0	10	10
Casual employee	33	23	56
Total	99	33	132

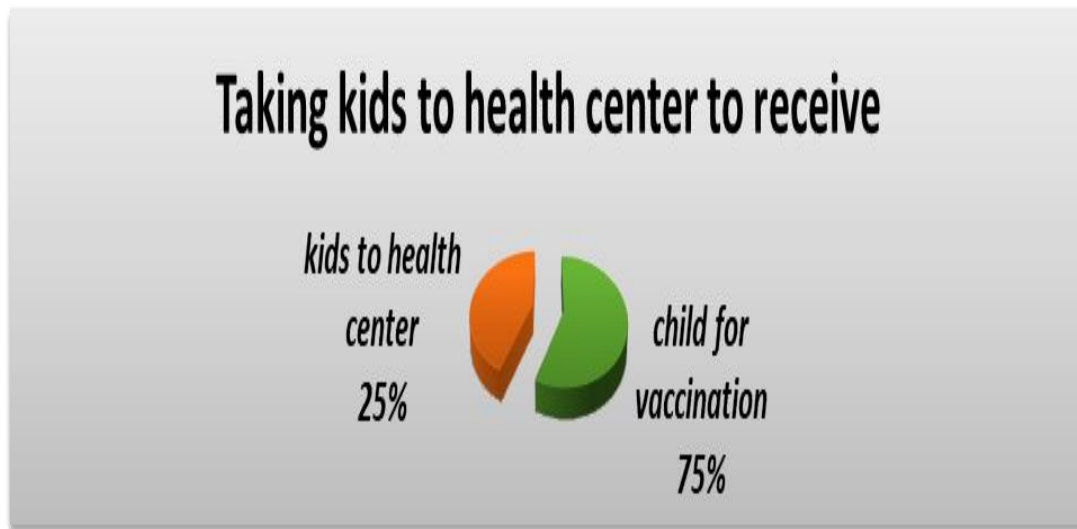


Figure 2. What is Immunization

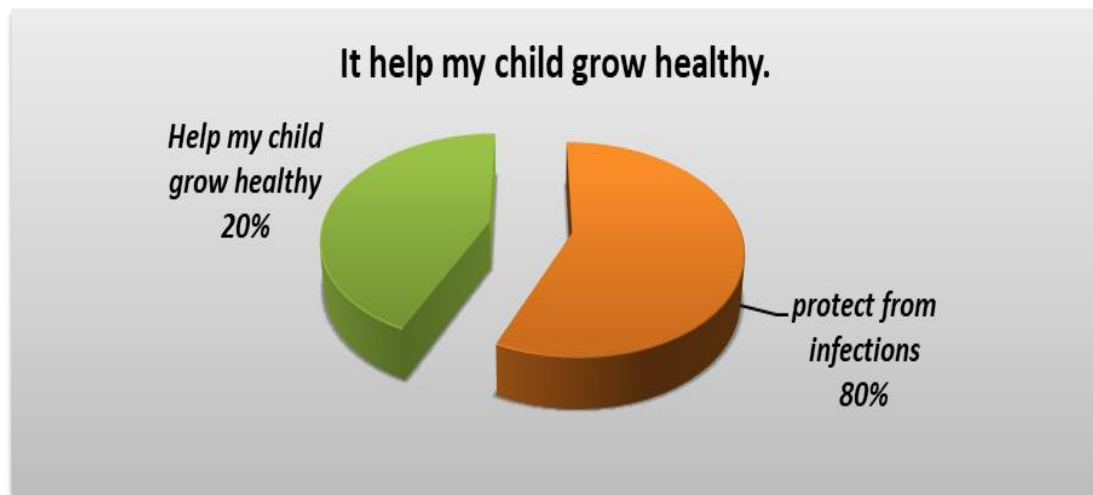


Figure 3. Reasons for Child Immunization

Mothers’ knowledge on specific VPDs were also examined, as showed in Table 3. The results revealed that 33% mentioned Malaria, pneumonia, headache, and diarrhoea as VPD while another 33% reported polio, measles, and yellow fever as VPD. Of these, 23% reported first vaccination should be received at birth, 26% reported to be at 6 weeks, while some

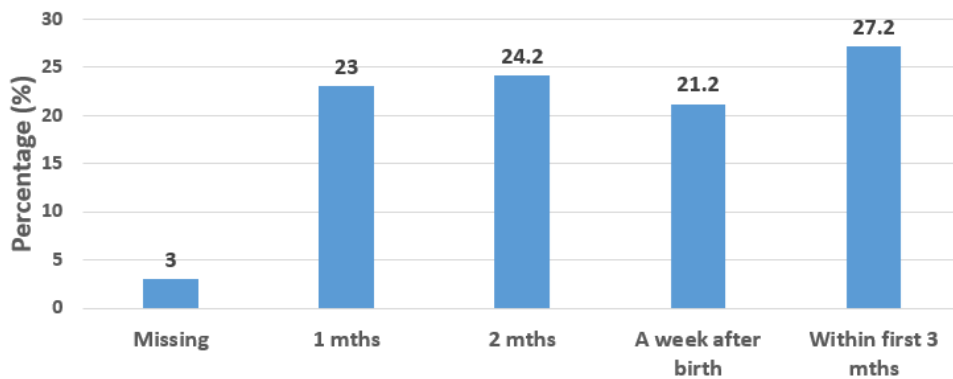
proportion reported at six months and one year, as shown in Figure 4. Regarding mothers’ opinion on the number of times a child should be vaccinated, 30% reported twice while 70% reported more than four times in order to be protected against VPDs, as illustrated in Figure 5. According to the findings, it revealed that 60% had not immunized their children.

Interestingly, 82% of children were confirmed to be vaccinated through the child's immunization card, as shown in Figure 6. At the same time, 40% reported to have

immunized their children before, which was ascertained. This indicates that 40% of mothers have some knowledge and understand child immunization.

Table 3. Knowing about Vaccine-Preventable Diseases by Types' Cross-tabulation?

Do you know the immunizable diseases	vaccine-preventable diseases			Total
	Missing	Malaria, Pneumonia, Headache & Diarrhoea	Polio, Measles & Yellow fever	
Yes	0	33	33	66
No	66	0	0	66
Total	66	33	33	132



Age at which a child receive first Vaccination

Figure 4. When should a Child Get the First Vaccine?

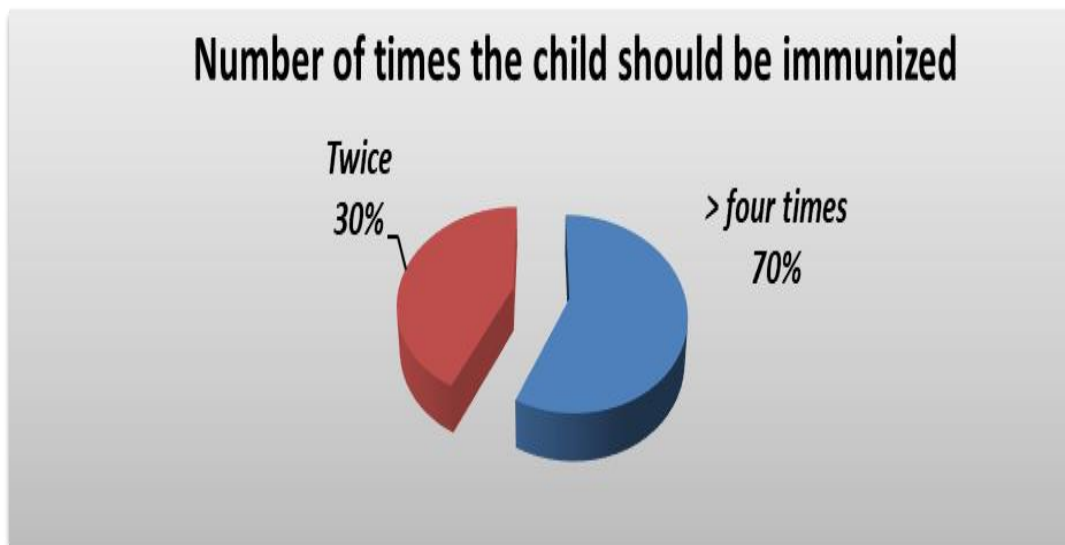


Figure 5. How many Times should a Child be Immunized?

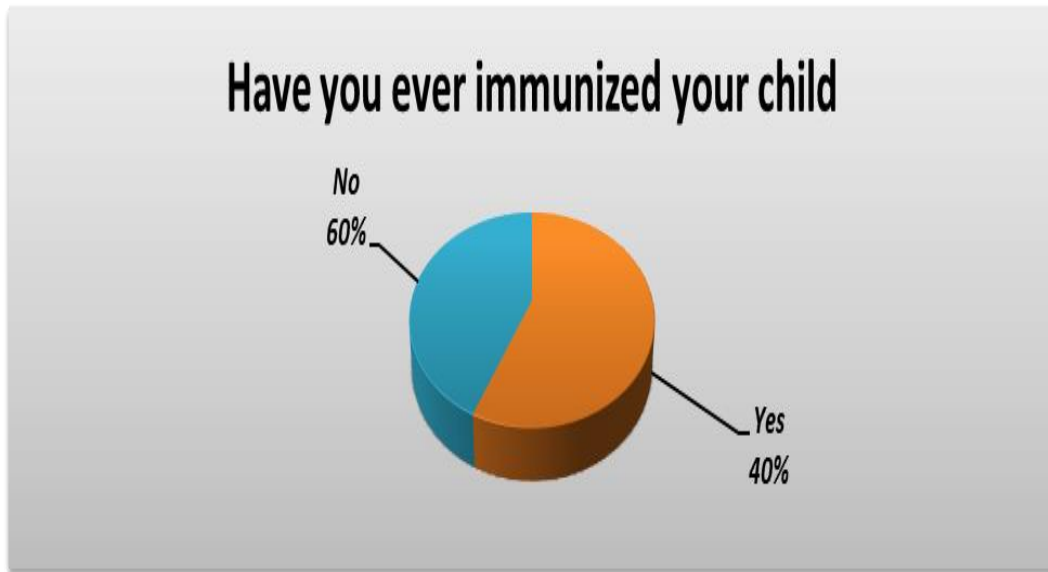
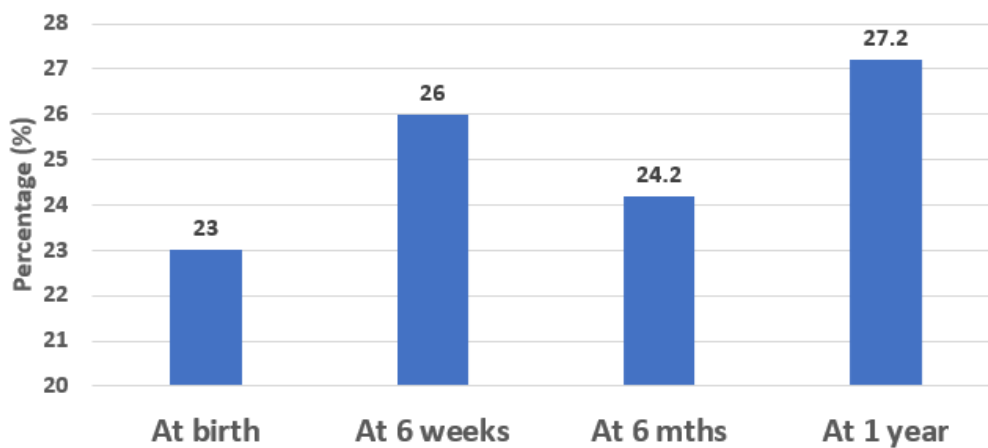


Figure 6. Have you ever Immunized your Child?

As shown in Figure 7, about 23% of the mothers reported that their children should start immunization at one month, 24.2% reported two months, 21.2% reported a week after birth, while 27.2% said within 1 to 3 months. Furthermore, mothers failing to know these will influence their decision to start immunization on time. As shown in Figure 8, about 30%

reported that their child receives measles vaccines within 1 year 9 months, while 67% could not recall if their child receives measles dose. This information is very important to mothers as it helps them know whether their children are fully immunized. It is also helpful during measles vaccination campaigns to know which children are eligible.



What Age do your children starts immunization

Figure 7. What ages do your Children Start Immunization?

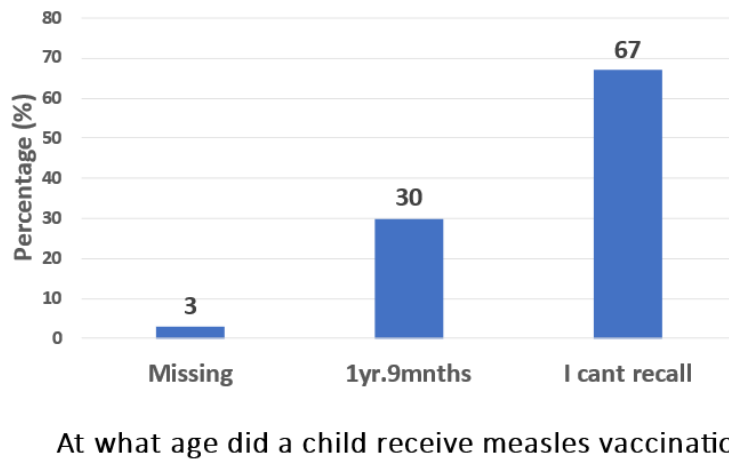


Figure 8. At what age did your Children Receive the Measles Vaccine

Discussion

During the study on factors influencing the knowledge and attitude of mothers of under-five children towards immunization in Farato, so many aspects were considered. A sample size of one hundred and thirty-two (132) mothers were interviewed for a period of two (2) weeks. From the data collected, 33 mothers representing (25%) could not explain what immunization is. Sixty-six (66) respondents, which represents (50%) cannot mention a single vaccine-preventable disease, and 33 (43.6%) referred to Diarrhoea, Pneumonia, and Malaria as EPI-targeted diseases. Indeed, this is quite in agreement with the study conducted in Congo; virtually all mothers have heard of immunization (99.8%). There was, however, confusion in their minds as to which diseases are targeted by EPI. Some mothers cited Diarrhoea (3.9%) and Malaria (3%) as EPI-targeted diseases. Most mothers attended immunization sessions without knowing exactly which vaccines they are there and which diseases they are protecting their children against [22]. Also, 26%, 24.2%, and 27.2% said a child should receive the first vaccine dose at 6 weeks, six months, and one year, respectively. Thus, indicating that there is limited knowledge

about immunization could dictate the attitudes and practice of mothers in seeking immunization services. The influencing factors deduced from the findings were inadequate knowledge of mothers on immunization processes, literacy and educational level of mothers, inadequate information from health workers during visits to health centers, occupation of mothers, and limited information among mothers was a major drop-out of immunization uptake [23-25].

The findings also revealed that 25% of mothers said immunization takes kids to a health center, while 75% stated that immunization takes children for vaccination to protect against diseases. Of the mothers interviewed, 50% said they do not know VPDs, 43% misunderstood what VPDs are, and only 53 mothers knew what immunizable diseases are and could mention these diseases. Similar research conducted in southern Nigeria to assess mothers' knowledge on vaccine-preventable diseases shows that 41.3% of mothers believe that immunization can prevent Malaria (72.3%), and 84.65% said it prevents Diarrhoea [26]. These results show knowledge gaps among respondents on the concept of immunization and vaccine-preventable diseases (VPDs).

Also, only 23% of mothers responded that a child should receive the first vaccine dose at birth, 26% said at 6 weeks, 24.2% said at 6 months, and the majority of the respondents (27.2%) said a child should receive the first vaccine dose at one year of age. These findings justify the need to intensify efforts on health education and community engagement activities targeting mothers and other caregivers to raise awareness on immunization.

Likewise, 30% of the respondents said a child should be immunized twice to be protected, while 70% said a child should be immunized more than four times to attained full immunization status. Moreover, most respondents (67%) cannot recall the age at which their child received the measles vaccine. A similar cross-sectional survey conducted by [27] among migrant mothers using a questionnaire showed high knowledge about immunization among migrant mothers with fully immunized children. These mothers were familiar with immunization from the health talks they had received on their entrance. Mother's age, education level and the number of children in the household, latest continuous living time, and monthly household income per capita was significantly associated with the immunization KAP among migrant mothers [27]. Compared to my study, the household per capita income is low as 50% of the respondents are housewives who had no formal education. Consequently, access to media by these mothers and an opportunity to benefit from health education sessions are limited; hence 30% of the respondents did not know the number of times their child should be immunized to attain fully immunized status.

In addition, my study findings have indicated that mothers in Farato delayed immunizing their children as 21.2% of mothers said they start immunizing their child a week after birth, 23% at age 1 month, 24.2% at 2, and 27.2% at 3 months. The act of mothers delaying in commencing immunization for their children has implications in attaining fully immunized

status. These mothers are preoccupied with domestic work and do not prioritize immunization clinics. Hence, they do not often benefit from the pre-clinic health talks conducted at clinics to enhance their knowledge of immunization services. The MICS study conducted by the government of The Gambia and partners in 2019-20 has validated my results as 84.6% of children were fully immunized nationally [28]. Also, completing the immunization schedule and achievement of the United Nations target of 90% of children under 1 year remains a challenge even in The Gambia [29, 30].

Conclusion

The study was carried out to identify factors influencing the knowledge and attitude of mothers towards under-five children immunization in Farato, The Gambia. This is a study of selected mothers. The sample size was 132 selected mothers; this was done through a convenient sampling method. The study findings revealed that there is less knowledge about immunization from the mothers because not all mothers understand the immunization process. The study results further suggested that mothers need to be taught what immunization is all about and the importance of it towards enhancing child survival and development. At health centers/facilities and outreach immunization clinic sites, health workers need to continue communicating to mothers the importance of this program; at least 90% of mothers should know the immunization process.

Conflict of Interest

The financial implications and time required could not permit the researcher to draw samples from the West Coast Region or the entire country. Thus, the results obtained showcased the findings from Farato, where the study was limited to. The findings are not representative of the whole West Coast Region neither the entire country.

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