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Health facility related factors affecting completion of immunization schedules for children under five years at St. Josephine Bakhita health centre ii, Lwengo district. A cross-sectional study.

Jackline Letasi*, Nelson Kakande, Jane Frances Namuddu
St. Michael Lubaga Hospital Training Schools

ABSTRACT

Background

The study aimed to identify the health facility-related factors affecting completion of immunization schedules for children under five years at St. Josephine Bakhita Health Centre II, Lwengo District.

Methodology

The study used a descriptive cross-sectional design with both quantitative and qualitative methods at St. Josephine Bakhita Health Centre II in Lwengo District, Uganda. Thirty caregivers of children under five attending postnatal immunization services were selected through convenience sampling over three days. Data were collected using researcher-administered questionnaires and analyzed using Epidata and SPSS v17. The dependent variable was immunization completion, with caregiver, socioeconomic, and facility factors as independent variables. Ethical approval, informed consent, and confidentiality were ensured.

Results

Most participants had primary education (67%), while 30% had secondary education, and farming was the main occupation (70%). In terms of access, 63% traveled 5-10 km to reach the health facility. Facility-related challenges were significant: 83% reported not always finding health workers present, 70% found the clinic sometimes closed, and 67% described nurses as unfriendly. Additionally, 83% were not reminded of the next immunization date, and 67% did not clearly understand the instructions provided. Waiting times were long, with 53% waiting more than two hours to be served. Despite these difficulties, 60% rated the services as somewhat good and 33% as very good.

Conclusion

Long distances, absent or late health workers, closed clinics, unfriendly nurses, and a lack of reminders contributed to incomplete immunization among children under five.

Recommendation

Health workers should use positive reinforcement, and authorities should provide staff housing to reduce lateness and improve immunization service delivery.

Keywords: immunization dates, completion of immunization schedules, waiting times**,** unfriendly nurses.

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Corresponding author: *Jackline Letasi*
Email: ***jacklineletasi00@gmail.com***
St. Michael Lubaga Hospital Training Schools

BACKGROUND

Childhood immunization plays a critical role in universal child survival, helping to eradicate infectious communicable illnesses and control epidemics worldwide. Despite these benefits, vaccine-preventable diseases still cause an estimated 2 to 3 million deaths annually among children under five years (World Health Organization [WHO], 2018). In developed countries such as the Netherlands, Switzerland, Germany, France, and Spain, approximately 98% of children under five years receive all recommended vaccines for preventable diseases, including tetanus, diphtheria, tuberculosis, pneumonia, and whooping cough (Machado et al., 2021). In Africa, these same vaccine-preventable diseases remain among the leading causes of death in children under five years (WHO, 2018). Although immunization could avert millions of deaths, more than 65% of children under five still have incomplete immunization schedules or have missed some doses (Bangura et al., 2020; Fenta et al., 2021). Incomplete immunization schedules continue to contribute significantly to under-five morbidity and mortality from preventable diseases (Bangura et al., 2020). In Uganda,

children are expected to complete 12 vaccinations according to the national immunization schedule by nine months of age. Full vaccination is defined as receiving one dose of Measles, Mumps, and Rubella (MMR), one dose of Bacillus Calmette–Guérin (BCG) for tuberculosis, three doses of Diphtheria, Pertussis, and Tetanus (DPT), and three doses of oral polio vaccine (Vonasek et al., 2016). At St. Josephine Bakhita Health Centre II in Lwengo District, incomplete immunization among children under five remains a serious challenge. Postnatal records for 2021–2022 indicated that 49.4% and 50.6% of children under five, respectively, missed some of their scheduled immunizations (St. Josephine Bakhita Health Centre II, 2022). However, there is limited literature explaining why these children miss their immunization schedules. This study aimed to identify the health facility–related factors affecting the completion of immunization schedules for children under five years at St. Josephine Bakhita Health Centre II, Lwengo District.

METHODOLOGY

Study Design and Rationale

This study employed a descriptive cross-sectional study design employing both quantitative and qualitative approaches of data collection. The main objective of descriptive research was to accurately describe the characteristics of the study population and situations related to incomplete immunization schedules of children under five years. It was a cross-sectional study because data were collected at a single point in time.

Study Setting and Rationale

The study was carried out at St. Josephine Bakhita Health Centre II, Lwengo District. Lwengo District is in the Central Region of Uganda, and Lwengo is the largest town in the district and the location of the district headquarters. Lwengo District is bordered by Sembabule District to the north, Bukomansimbi District to the north-east, Masaka District to the east, Rakai District to the south, and Lyantonde District to the west. Lwengo is 45 kilometres (28 miles), by road, west of Masaka, the nearest large city. The study setting was chosen mainly because of the prevailing problem of incomplete immunization schedules in the health facility.

Study Population

The study population was the caregivers of children under five years seeking postnatal care services at St. Josephine Bakhita Health Centre II, Lwengo District. Sample Size Determination: The sample size was 30 respondents who were comprised of caregivers of children under five years reporting to the facility for immunization services. This sample size was considered appropriate as the minimum number as per the research guidelines of the Uganda Nurses and Midwives Examinations Board 2009.

Sampling Procedure

A convenience sampling method was used. In this approach, participants were selected based on their availability, accessibility, and proximity to the study setting. This method was chosen because it was faster, easier, and cost-effective in recruiting individuals with the desired characteristics for the study. Caregivers who presented to the postnatal clinic for childhood immunization were included, provided they voluntarily agreed and gave informed consent to participate. A total of 10 respondents were enrolled per day over a period of three days to achieve the required sample size of 30 participants.

Inclusion and Exclusion Criteria

The study considered only parents/caretakers with children who attended the Postnatal Clinic at St. Josephine Bakhita Health Centre II who were mentally stable and participated voluntarily and freely consented during the time of the study. The study excluded the parents/caretakers with children who attended the Postnatal Clinic at St. Josephine Bakhita Health Centre II who never consented to participate in the study, and those who were mentally ill or very sick.

Definition of Variables

The study examined the relationship between two variables: dependent and independent variables. The dependent variable was the completion of immunization schedules, while the independent variables were the caregiver-related factors, socio-economic-related factors, and health facility-related factors affecting completion of immunization schedules.

Research Instruments

The study used a researcher-administered questionnaire to collect data from the caregivers of children under five years during data collection. A Researcher Administered Questionnaire was composed of both closed and open-ended questions and was preferred because not all caregivers knew how to read and write English perfectly, so she interviewed them. Also, the data was easy to analyze in a figure and table format as compared to interview guides or focus group discussions.

Data Collection Procedure

After approval of the proposal and clearance by the supervisor, a letter of introduction was obtained from St. Michael Lubaga Hospital Training Schools and presented to the In-charge of St. Josephine Bakhita Health Centre II to request permission to conduct the study among caregivers of children under five years attending the postnatal clinic for immunization. Permission to collect data was granted by the In-charge. Acceptance was then sought from the selected respondents during sampling, and the questionnaire was administered after informed consent was obtained through signing of the consent form.

Respondents who were able to read and write English completed the questionnaires independently, while those who were unable to do so were interviewed, and their responses were recorded accordingly.

Data Management

The filled questionnaires were collected back, counted, checked for completeness/accuracy, and edited after every data collection day to ensure that they were all returned, coded, and kept in a safe place as a backup. A flash disk was also used to store data. Filled questionnaires were then cleaned as they waited for data analysis.

Data Analysis

Collected data was sorted, entered into Epidata, and then exported to Statistical Package for Social Scientists for analysis. Data from open-ended questions was also sorted, arranged, and similar responses were grouped and analyzed using SPSS version 17.

Ethical Consideration

An introduction letter was obtained from the Principal Tutor, St. Michael Lubaga Hospital Training Schools, which was presented to the In-Charge of St. Josephine Bakhita Health Centre II, seeking permission to carry out the study among caregivers of children under five years presented at the Postnatal Clinic.

Both verbal and written consent were obtained from the respondents before the data collection exercise. Participants were assured that confidentiality would be strictly maintained and that their names were not required on the questionnaires.

RESULTS

Demographic Characteristics

Figure 1: Respondents' distribution by gender ***(n=30)***

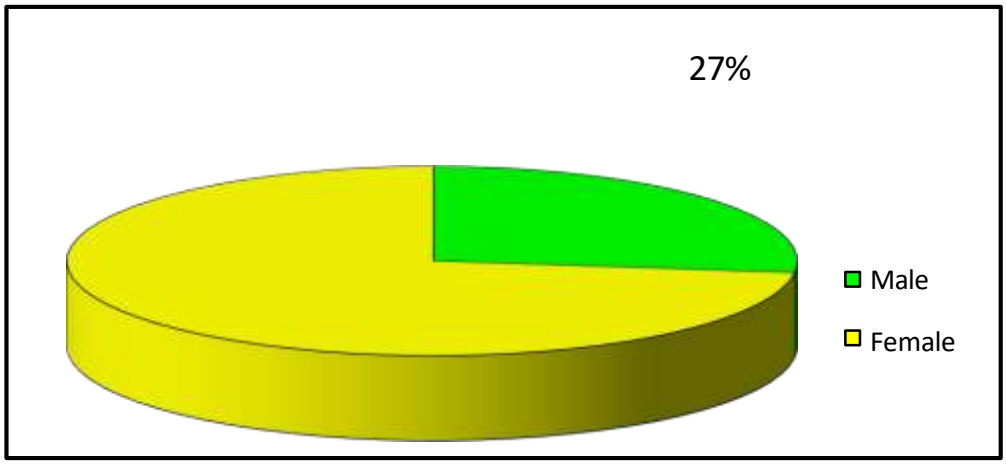

Figure 1 indicates that the majority, 22(73%) of the respondents were female caregivers, while the minority, 8(23%) were male.

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Table 1: Shows the respondents' distribution by marital status (n=30)

Variable	Responses	Frequency	Percentage (%)
Marital status	Married	20	67
	Single	6	20
	Separated	4	13
	Total	**30**	**100**

Table 1 shows that the majority 20(67%) of the respondents were married, followed by 6(20%) who were single caregivers while the least or minority 4(13%) had separated with their spouses.

Figure 2: Shows the respondents' distribution according to their age brackets (n=30)

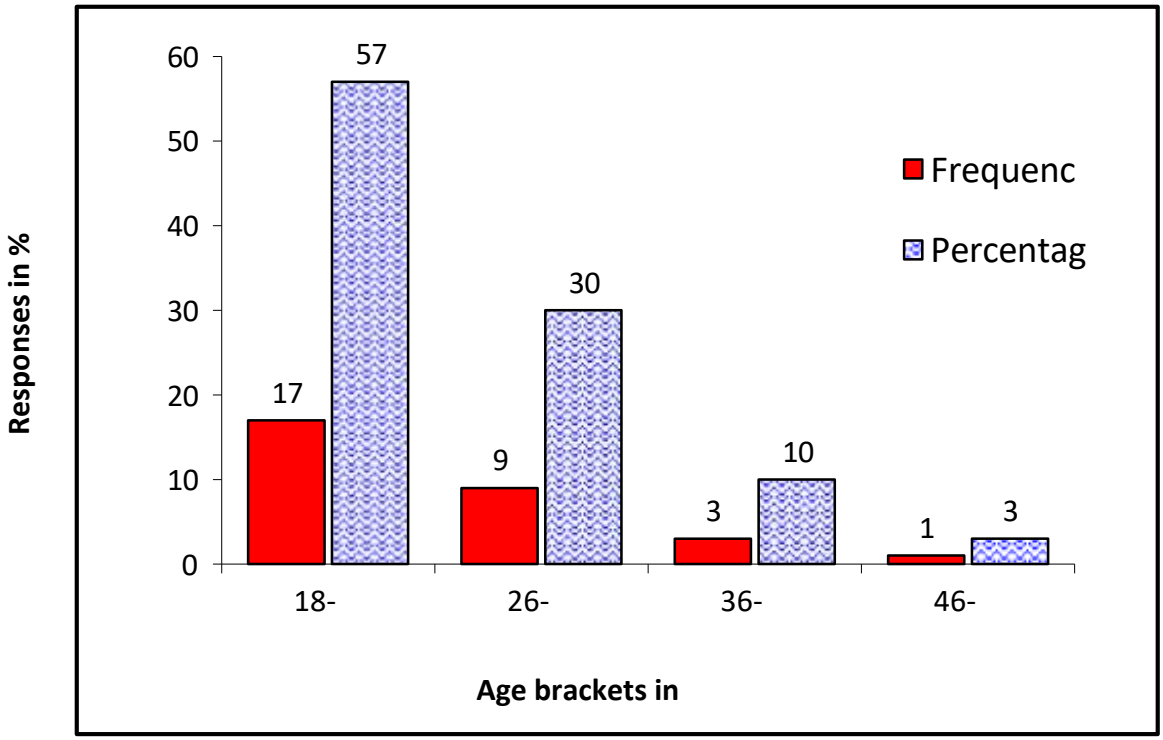

Figure 2 depicts that more than half 17, 57%) of the respondents were in the age bracket of 18- 25 years, followed by 9(30%) who were in between 26-35 years; 3(10%) were in between 36- 45 years, and the least 1(3%) was aged 46 years.

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Table 2: Distribution of the respondents according to their education level (n=30)

Variable	Responses	Frequency	Percentage (%)
Education level	No formal education	1	3
	Primary	20	67
	Secondary	9	30
	Total	**30**	**100**

Table 2 indicates that the majority, 20(67%) of the respondents had attained primary education level, followed by 9(30%) with secondary education, and the least represented 1(3%) of them had no formal education level.

Figure 3: The distribution of the respondents according to their occupations (n=30)

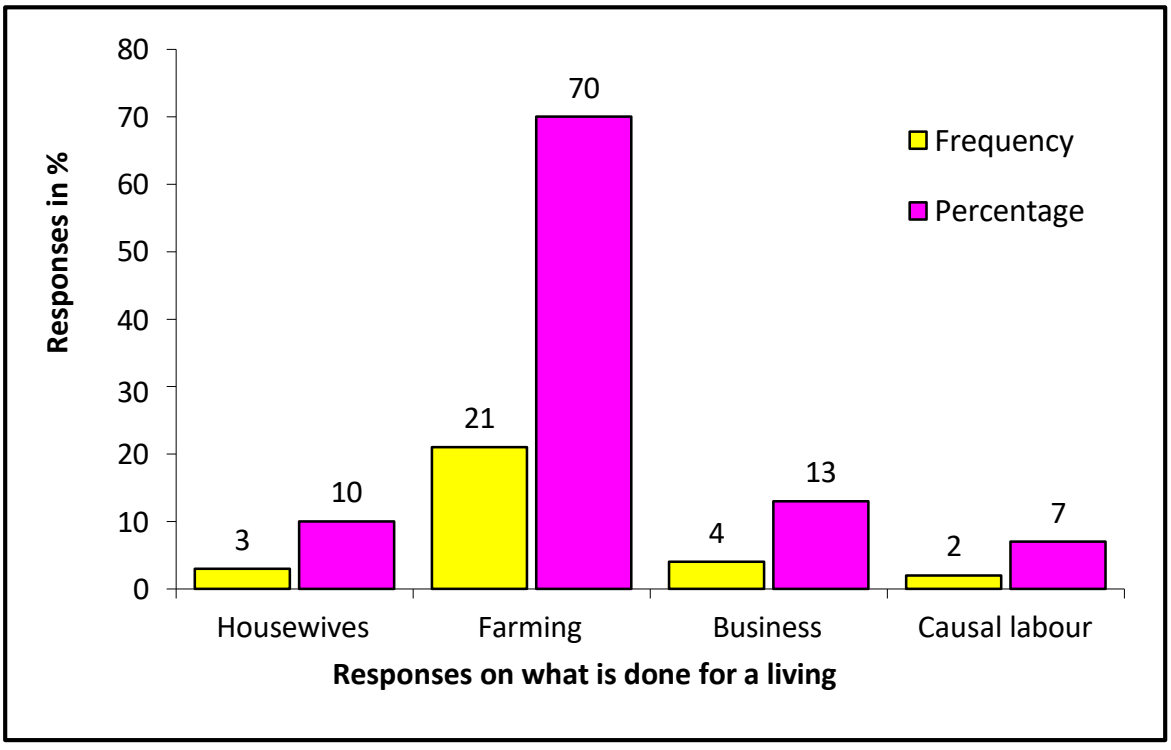

Figure 3 indicated that the majority, 21(70%) of the respondents were doing farm work for a living, followed by 4(13%) who were doing business; 3(10%) were housewives, and only 2(7%) were doing casual labour to earn a living.

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Health facility related factors affecting completion of immunization schedules

Figure 4: Responses on the distance covered to reach the health facility(n=30)

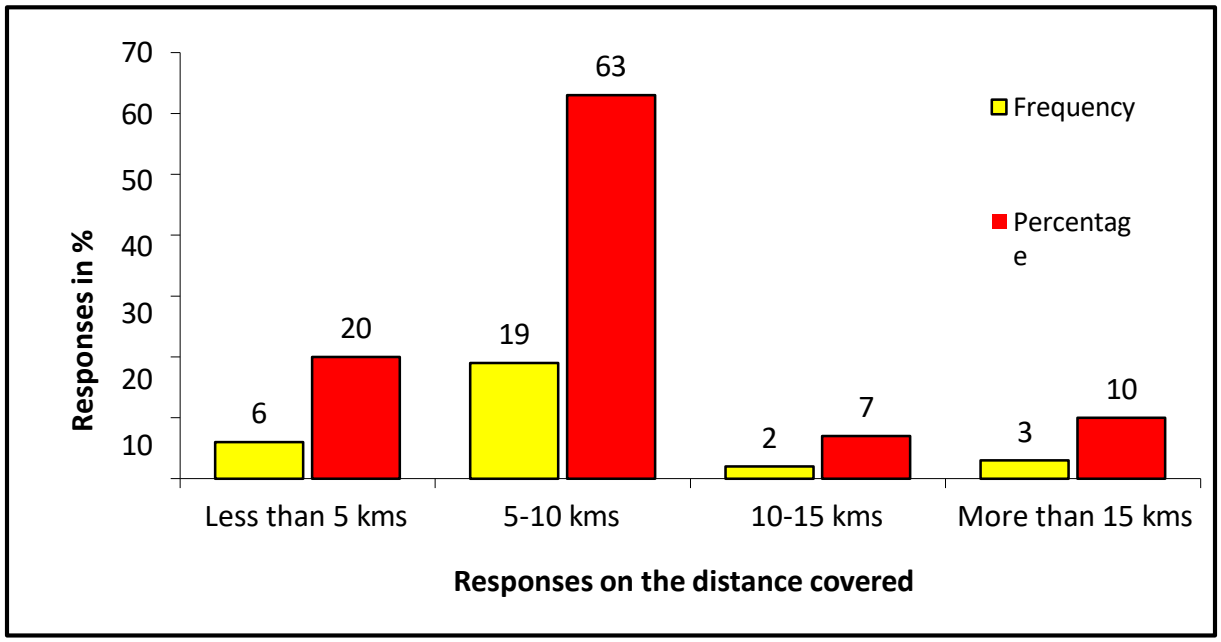

Figure 4 shows that when the respondents were asked the distance they covered to reached the health facility for the child's immunization schedule, 19(63%) of them mentioned 5-10 kilometres; 6(20%) covered less than 5 kilometres; 3(10%) covered more than 15 kilometres while 2(7%) covered 10-15 kilometres.

Figure 5: Whether respondents always found health workers in the facility (n=30)

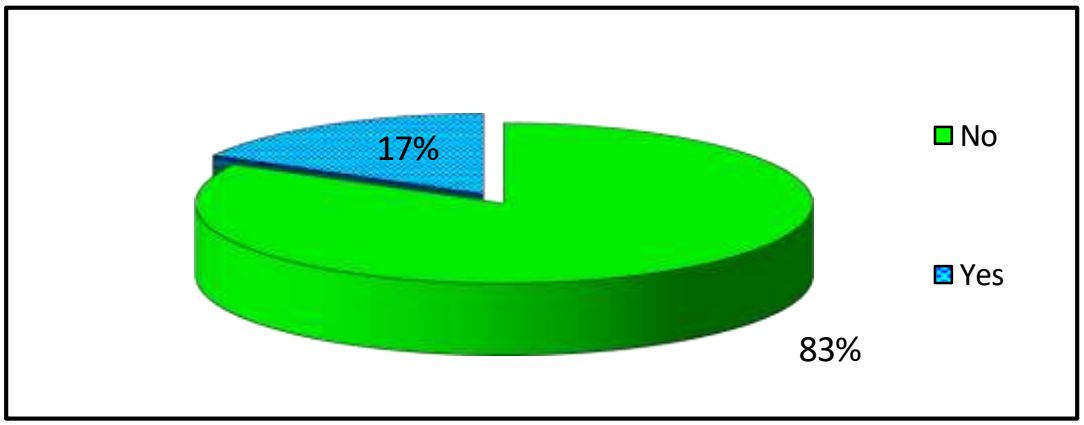

Figure 5 showed that when the respondents were asked whether they always found health workers in the facility whenever they came for immunization, the majority, 25(83%) of them said no, while only 5(17%) said yes.

Figure 6: Whether immunization clinic was always found open(n=30)

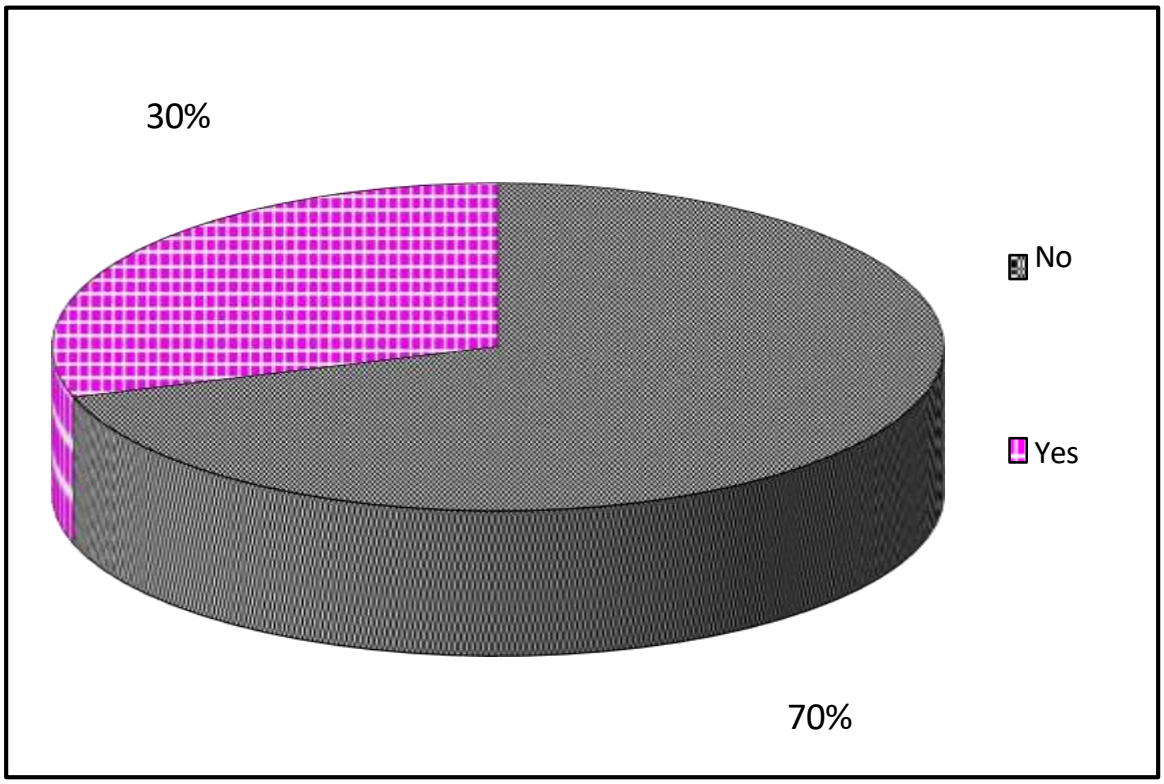

Figure 6 shows that when the respondents were asked whether the immunization clinic was always open whenever they came, the majority, 21(70%) of them said no, while only 9(30%) said yes.

Figure 7: Whether nurses conducting immunization were friendly. (n=30)

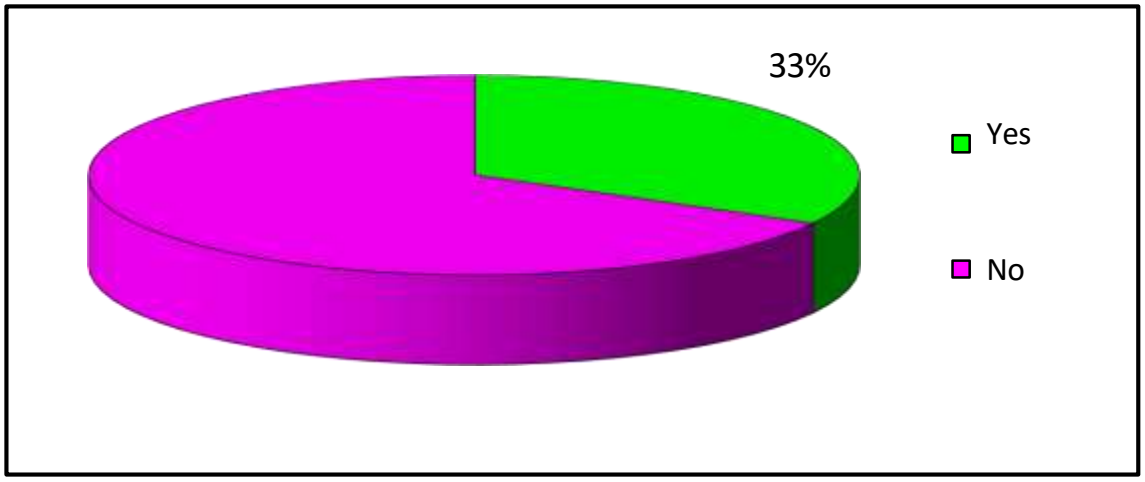

Figure 7 showed that when the respondents were asked whether nurses conducing immunization were friendly, majority 20(67%) of them said no while minority 10(33%) said yes.

Figure 8: Whether respondents were always reminded about the next schedule (n=30)

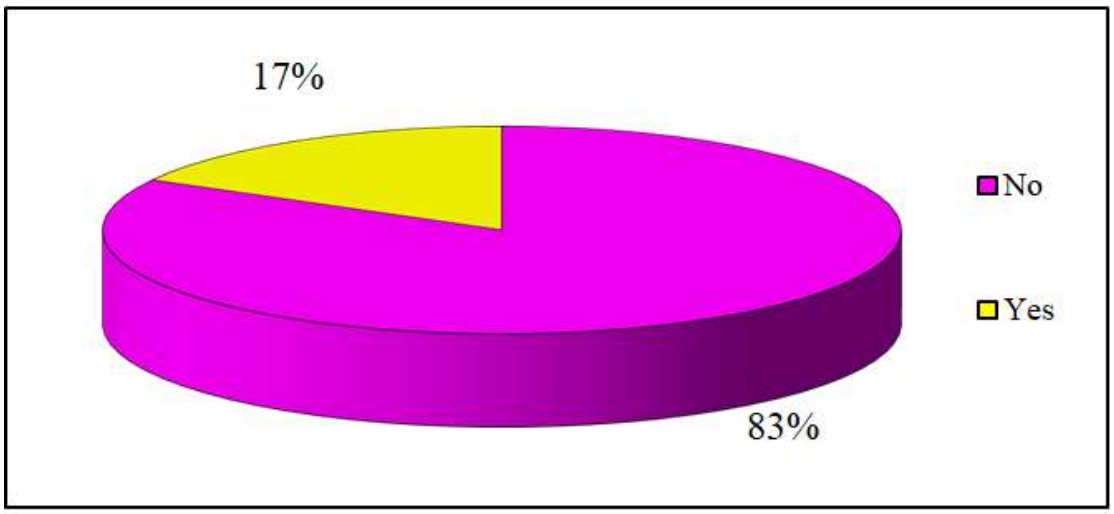

Figure 8 shows that when the respondents asked whether they were always reminded verbally when to return for the next vaccine, majority 25(83%) of them said no while only 5(17%) said yes.

Figure 9: Whether respondents always understood clearly what nurses told (n=30)

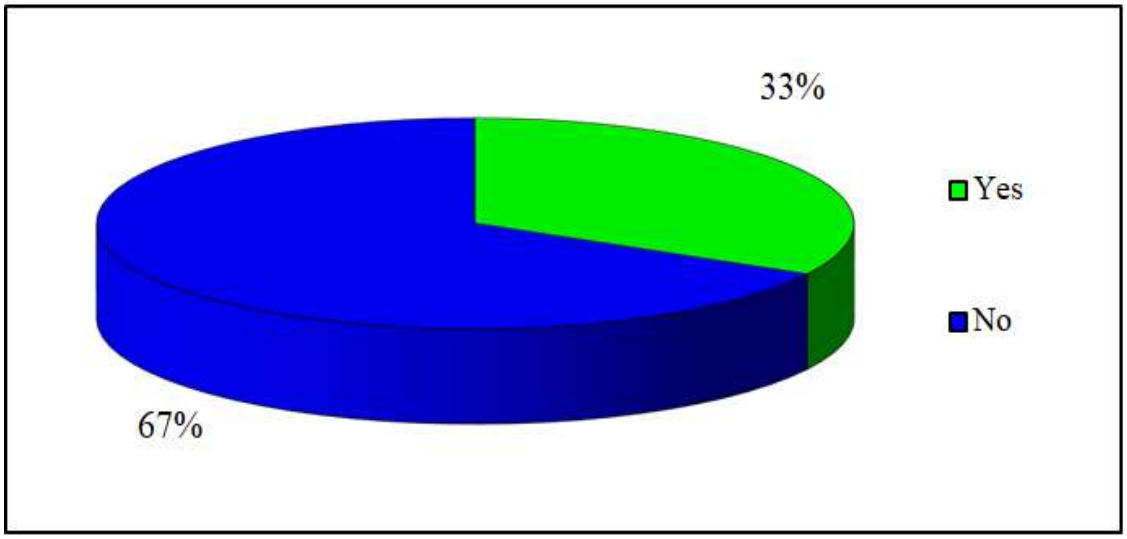

Figure 9 showed that when the respondents were asked whether they always understood clearly what nurses told them during and after child immunization, majority 20(67%) of them said no while the minority 10(33%) said yes.

Table 3: Responses on the waiting time taken for the child to be immunized. (n=30)

Variable	**Responses**	**Frequency**	**Percentage (%)**
How long did you always take waiting to be served?	Less than 30 minutes	2	7
	30-60 minutes	5	17
	1-2 hours	7	23
	More than 2 hours	16	53
	Total	**30**	**100**

Table 3 shows that when the respondents were asked how long they always took waiting to be served at the clinic, more than half 16(53%) of them said more than 2 hours followed by 7(23%) who mentioned 1-2 hours; 5(17%) pointed out 30-60 minutes while 2(7%) said less than 30 minutes.

Table 4: Respondents' rating of the quality of immunization services (n=30)

Variable	Responses	Frequency	Percentage (%)
Please rate the quality of immunization services in this facility.	Somehow good	18	60
	Very good	10	33
	Not really good	2	7
	Total	**30**	**100**

Table 4 showed that when the respondents were asked to rate immunization services in the health facility, the majority, 18(60%), rated them somewhat good, followed by 10(33%) who rated them very good, and the minority, 2(7%), rated them not really good.

DISCUSSION

The study aimed to identify health facility–related factors affecting the completion of immunization schedules for children under five at St. Josephine Bakhita Health Centre II. The findings showed that a majority of caregivers, 19 (63%), traveled 5–10 kilometers to reach the facility. This long distance was a significant factor in incomplete immunization, as caregivers may find it tiresome to travel while managing demanding household tasks. These findings are consistent with a study in Ethiopia, where 75% of respondents missed immunization schedules because the health facility was located more than six kilometers away (Tilahun et al., 2020). A minority of caregivers, 11 (37%), traveled more than 8 kilometers. Among those who arrived early at the facility, 25 (83%) reported that health workers were not available upon arrival. This aligns with findings from Western Uganda, where 69% of respondents did not return for subsequent immunization due to long distances and unfriendly transport systems (Magambo et al., 2020). Additionally, 21 (70%) of caregivers reported that the immunization clinic was sometimes not yet open. Late reporting of health workers was a key factor affecting completion, possibly due to the lack of housing facilities, forcing staff to travel long distances before starting work. Similarly, a study in Nigeria found that the absence of health workers, late facility opening, and negative attitudes among service providers negatively impacted immunization completion (Faisal et al., 2022).

Furthermore, 20 (67%) of caregivers noted that nurses conducting immunizations were not friendly. Negative attitudes among nurses, overwork due to low staffing, failure to verbally remind caregivers of return schedules, and waiting times exceeding two hours were identified as health facility–related factors contributing to incomplete immunization. These findings align with research in Uganda showing that non-completion of vaccination was often due to staff being busy, not reporting to vaccination points, or caregivers' fear of health workers (Nakatudde et al., 2019).

CONCLUSION

Most people mentioned long distance of 10-15 kilometres to the health facility, failure to find health workers sometimes in the facility, failure to find the immunization centre sometimes open, unfriendly behaviours of the nurses conducting immunization and not verbally not reminding caregivers of the next return date were some of the factors that affected the completion of immunization schedules for children under five years.

RECOMMENDATION

Health workers should consider using reinforcement, such as gifts, rewards, and praise, rather than punishment, such as scolding and shouting, to encourage improved immunization uptake, because unfriendly and negative attitudes of nurses conducting immunization were observed as factors affecting immunization uptake. There is a need for the Ministry of Health, together with other concerned organizations like the District Health Office and private operators, to provide housing facilities for health workers in lower health facility units, because late coming, which causes late opening of the facility, was among the factors cited in the study.

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ABBREVIATIONS

LMIC : Low- and Middle-Income Countries
SDG : Sustainable Development Goals
SPSS : Statistical Package for Social Sciences
SSA : Sub-Saharan Africa
UNICEF : United Nations Children's Emergency Fund
UNMEB : Uganda Nurses and Midwives Examinations Board
WHO : World Health Organization

SOURCE OF FUNDING

The study had no funding.

CONFLICT OF INTEREST

The authors declare no conflict of interest

DATA AVAILABILITY

Data is available upon request from the author

AUTHOR BIOGRAPHY

Letasi Jackline, a student pursuing a diploma in nursing at St. Michael Lubaga Hospital Training Schools
Kakande Nelson: research supervisor at St. Michael Lubaga Hospital Training Schools
Jane Frances Namuddu, research supervisor at St. Michael Lubaga Hospital Training Schools

AUTHOR CONTRIBUTIONS

LJ: collected the data
KN: supervised the study
JFN: supervised the study
Jane Frances Namuddu, supervised the study

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Contact: +256 763 123 847

Email: afroglobalpress@gmail.com

Website: https://afroglobalpress.com

Address: Scholar's Summit, Nakigalala, East Africa