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Original article

KNOWLEDGE, ATTITUDE, AND PRACTICES OF MOTHERS TOWARDS CHILD IMMUNIZATION SCHEDULE COMPLIANCE AT MASAKA REGIONAL REFERRAL HOSPITAL, MASAKA DISTRICT. A CROSS-SECTIONAL STUDY.

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Abstract

Background:

The burden of unimmunized children in Uganda is 48% of children under the age of five years who are not immunized at all or partially immunized meaning some of them start immunization but do not complete the immunization schedule.

Objectives:

The study is intended to explore the knowledge, attitude, and practices of mothers toward child immunization schedule compliance in Masaka Regional Referral Hospital in Masaka District.

Methodology:

The study was based on a purposive sampling method in which 117 mothers were enrolled in the study; the study employed a structured questionnaire that was administered by the researcher and the research assistants to collect data.

Results:

The majority of the mothers; were in the 20-35 age group 50.4%, the Baganda tribe 37.6%, married 45.3% and those who attained secondary education level were 49.6%.53.8% defined immunization as the process of administering vaccines to prevent diseases, 45.3% mentioned about 3 child immunizable diseases, 89.7% were sensitized about the importance of immunization towards their children's health and 63.2% agreed that their children's immunization schedule was according to the recommended immunization guidelines.

Conclusions:

The study findings indicate that the majority of the mothers know child immunization, its importance towards their children's health and when a child needs to be vaccinated, the VPDs, and the recommended sites for different vaccines.

Recommendations:

Based on the findings in the study it is recommended that the government should come up with programs creating awareness concerning the importance of child immunization as well as providing health education to parents about Vaccine Preventable Diseases.

1. Background to the study

Immunization is a means of protecting a person against vaccine-preventable diseases by building the body's defense system so that it can fight off diseases. This is achieved by giving vaccines through the mouth or by injection. Immunization is provided by qualified Health workers at all Government, Non-Government Health Facilities and Outreach sites in various communities at no cost

It is achieved through the use of vaccines. The concept of vaccination was introduced by Edward

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in 1796 when he performed an inoculation on James Phillips against smallpox and was unaffected after subsequent exposures. Immunization, therefore, plays an important role in the protection of children against childhood killer diseases

The World Health Organization (WHO) recommends that all children aged nine months and below should be immunized against the following childhood diseases; Tuberculosis, Polio, Whooping cough, Diphtheria, Tetanus, Measles, Hepatitis B infection, Haemophilus influenza, Pneumococcal infection, and Rotavirus infection. The vaccines are administered starting at birth or first contact and thereafter at 6 weeks, 10 weeks, 14 weeks, and 9 months

Newborn needs to be immunized as they grow up because it strengthens a child's ability to fight diseases against childhood immunizable diseases, contributes to a child's proper growth and development, and reduces costs in terms of time and money spent on treatment which contributes to socio-economic development, protects the women and her future babies from tetanus though Immunization is very effective in preventing diseases when all recommended doses of vaccines are given at the right time as per the schedule

Globally, vaccination continues to decline in 2021 with 25 million children missing out on lifesaving vaccines, 2 million more than in 2020, and 6 million more than in 2019. The World Health Organization (WHO) estimates of national immunization coverage also show that 112 countries experienced declining DPT3 coverage since 2019 with 62 of those countries declining by at least 5% points as a result 25 million children were under-vaccinated in 2021 where more than 60% live in 10 countries and 18 million did not receive any vaccines, an increase of 5 million from 2019. Asia holds the highest prevalence of noncompliance which implies notable gaps in vaccination coverage among most regions.

In Saudi Arabia, 51.8% of the parents don't adhere to childhood immunization which is related to a combination of perceptions of; the benefits of immunization, barriers to obtaining immunization, and self-efficacy.

According to Brown et al 2012, the immunization coverage in Sub-Saharan Africa is 71% which indicates a low level of immunization compliance in comparison to the WHO target.

The nationally acceptable coverage for every vaccine is 90%. However, according to Uganda Demographic Health Survey (UDHS), the national immunization indicated that the national coverage is below the desired coverage of 90% except for BCG (96%) most likely because it's administered at birth. Many parents drop out or fail to go for routine immunization and do not complete the immunization schedule.

The key drivers of immunization schedule compliance in Uganda include education levels of caretakers or parents, cultural or religious beliefs, age of caretakers, terrain, accessibility to health facilities, mobility of the population, refugee status, negative or anti-vaccine sentiments, socioeconomic status and attitudes of caretakers. Besides, there could be variations in health information management system (HMIS) based estimates that only 55% of children aged 12 to 23 months were found to be fully vaccinated with coverage being relatively higher in urban areas. The general objective of the study is to determine the knowledge, attitude, and practices of mothers toward child immunization schedule compliance at Masaka Regional Referral Hospital.

2. METHODOLOGY

2.1. Study Design

The study design was cross-sectional and descriptive, employing quantitative data collection methods. It was a cross-sectional type of design because it involved the collection of data from a single point in time.

2.2. Study area

The study was conducted in Masaka Regional Referral Hospital which is located 132km by the road away from Kampala City in Masaka District. It is the main Health care facility in the district serving over 3 million people in nine districts which include Masaka, Kalungu, Kalangala, Ssembabule, Lyantonde, Lwengo, Bukomansimbi, and Rakia. The study setting is selected

because the problem under study is prevalent on the ground according to the immunization records presented. The health facility offers many health care services including immunization, child health services, obstetrics and emergency care, HIV/AIDS management services, general patient management, laboratory services, nutrition services, antenatal and post-natal services, EMTCT program as well as RCT services, among others. The study was conducted in January 2023.

2.3. Study Population

The study population comprised mothers with children aged 9 months and below attending MCH at Masaka Regional Referral Hospital in January.

2.4. Selection criteria

2.4.1. Inclusion criteria

The study included mothers with children aged 9 months and below who attended immunization services at the MCH department in Masaka Regional Referral Hospital. Only mothers who consented to participate in the study were considered.

2.4.2. Exclusion criteria

Mothers who didn't consent to participate in the study were excluded from the study and also mothers who had children aged above 9 months were not included in the study.

2.5. Sample Size determination

The overall sample size will be determined using Kish and Leslie's (1965) formula.

N =Z2PQ

E2

Where N= Sample size required

E= acceptable error/ required precision of the estimate = 0.09

Z= the standard variant (normal Z-score) corresponding to the confidence interval i.e., for the confidence interval of 95% Z=1.96,

P= Proportion of children that received all basic vaccinations i.e. 55.8% (Uganda Bureau of Statistics, 2016)

Q = (1-P)

(1-0.558) = 0.442

N = 1.962x 0.558 x 0.442

(0.09)2

n = 117 Respondents

Therefore, 117 respondents were involved in the study.

2.6. Sampling technique

The sampling technique was a non-probability sampling method i.e. purposive sampling method was used since the data to be collected in- volved mothers who brought their children aged 9 months and below for immunization.

2.7. Sampling procedure

The researcher selected mothers who brought their children for immunization at MCH in Masaka Regional Referral Hospital, Masaka District.

2.8. Data collection methods

The questionnaire was used for data collection in the study. It was delivered by the researcher to the selected participants where information regarding factors associated with immunization schedule compliance was sought.

2.9. Data collection tools

The only data collection tool in the study was a questionnaire that comprised both open and close-ended questions which were typed and printed on paper in English by the researcher including other materials like pens, rulers, and a parcel.

2.10. Data collection procedure

The respondents were informed about the content of the study and consent was sought. The researcher got information from the respondents as she recorded it herself with a serial number printed on every questionnaire for each respondent.

2.11. Piloting the study

The researcher sought permission from relevant authorities and then developed a questionnaire that was pretested at Masaka Regional Referral Hospital to check the effectiveness, reliability, and sustainability of the researcher.

2.12. Quality control

For quality data collection, two research assistants were recruited and trained by the principal researcher on how to answer questions in the questionnaire form, how to treat respondents ethically, and how to translate any questions in the questionnaires for respondents. These assisted in interviewing mothers with children aged 9 months and below and filling in the questionnaires according to the responses given.

2.13. Data Analysis and presentation

The data collected was analyzed using Microsoft Excel, SPSS version 22 to generate frequencies and percentages. Findings were presented in the form of tables, pie charts, and graphs.

2.14. Ethical considerations

A letter of introduction from the Principal of Medicare Health Professionals College was presented to the administration of Masaka Regional Referral Hospital seeking permission to conduct the study within the hospital. A copy of the letter was presented to the head of the Department of MCH seeking permission to carry on data collection among mothers. Informed consent was sought from the respondents after a thorough explanation of the study and high-quality confidentiality was ensured by the use of serial numbers instead of names on the questionnaire forms. Participation was entirely voluntary.

3. RESULTS

3.1. Socio-demographic characteristics of respondents

Table 1, show that the majority 59(50.4%) of the respondents were between (20-35) years of age while the minority 3(2.6%) were 46 and above, 53(45.3%) of the respondents were married while the least 30(25.6%) were single. The majority 44(37.6%) of the respondents were Baganda by tribe and the minority 12(10.3%) group were Bagisu. The majority 53(45.3%) of the respondents were self-employed while the minority 20(17.1%) were under the category of others (house wife). Most 58(49.6%) of the respondents had attained a maximum of secondary level education and the least 6(5.1%) of the respondents had attended none.Knowledge of mothers about immunization

In Table 2, the majority 112(95.7%) of the respondents had knowledge that immunization prevented their children from acquiring diseases.

In Table 3, most 63(53.8%) of the respondents defined immunization as a process of administering vaccines to prevent diseases among children and the least 14(12.0%) had false ideas that immunization was a form of government business.

In Table 4, the majority 56(47.9%) of the respondents pointed out fever as the most common side effect of immunization, followed by general body weakness 27(23.0%), then skin rash 25(21.4%) and lastly convulsions 09(7.7%).

In table 5, the majority 53(45.3%) of the respondents were able to mention about 3 child immunizable diseases and the minority 05(4.2%) were unable to mention any correct child immunizable disease.

3.2. Attitude of mothers towards immunization of children below 1 year.

In Figure 1, the majority 105(89.7%) of the respondents agreed that immunization was important for their children's health.

In figure 2, Majority 93(79.5%) of the respondents said that they would encourage other mothers to bring their children for immunization and a few 24(20.5%) said that they would not encourage others to bring them by choosing No.

In Table 6, the majority 75(64.1%) of the respondents chose option No implying that they would not take their children for immunization in an immunization campaign.

3.3. Practices of mothers towards immunization

In table 7, all respondents immunized their children from medical centers where the majority 64(54.7%) of the respondents always took their children to health centers for immunization.

In Figure 3, the majority 74(63.2%) of the respondents chose Yes meaning that their children's

Table 1: Distribution of Respondents by socio-demographic characteristics (n=117)

VARIABLE	FREQUENCY	PERCENTAGES (%)
AGE		
12-19	21	17.9
20-35	59	50.4
36-45	34	29.1
46 and above	03	2.6
MARITAL STA-TUS		
Single	30	25.6
Married	53	45.3
Other	34	29.1
CULTURE		
Muganda	44	37.6
Munyankole	27	23.0
Musoga	18	15.4
Mugisu	12	10.3
Others	16	13.7
OCCUPATION		
Self employed	53	45.3
Unemployed	44	37.6
Others	20	17.1
RELIGION		
Catholic	42	35.9
Protestant	25	21.4
Moslem	10	8.5
Born again	29	24.8
Others	11	9.4
EDUCATION LEVEL		
Primary	36	30.8
Secondary	58	49.6
Tertially	17	14.5
None	6	5.1

Table 2: Distribution of respondents by known benefit of immunization, where n=117.

RESPONSE	RESPONDENTS	PERCENT (%)
Treating diseases	05	4.3
Preventing diseases	112	95.7
Total	**117**	**100**

Table 3: showing how respondents define immunization, where n=117.

RESPONSE	RESPON-DENTS	PERCENTAGE (%)
Process of administering vaccines to prevent diseases	63	53.8
Routine of injecting children with drugs to treat diseases	40	34.2
Form of business gained from by the government	14	12.0
Total	**117**	**100.0**

Table 4: Showing adverse effects of immunization, where n=117.

ADVERSE EFFECT	NO. OF RESPONDENTS	PERCENTAGE (%)
Fever	56	47.9
Convulsions	9	7.7
Skin rash	25	21.4
General body weakness	27	23.0
Total	**117**	**100**

Table 5: showing any 5 child immunizable diseases known to the respondents, where n=117.

RESPONSE	NO. OF RESPONDENTS	PERCENTAGE (%)
Only 1	09	7.7
About 2	14	12.0
About 3	53	45.3
More than 3	36	30.8
None	05	4.2
Total	**117**	**100.0**

Table 6: Distribution of respondents who would take their children for an immunization campaign, where n=117

RESPONSE	RESPONDENTS	PERCENTAGE
No	75	64.1%
Yes	42	35.9%
Total	117	

Table 7: Distribution of respondents to places where they always take their children for immunization, where n=117

RESPONSE	RESPONDENTS	PERCENTAGE (%)
Hospital	38	32.5
Clinic	15	12.8
Health centre	64	54.7
Others	00	0.0
Total	**117**	**100.0**

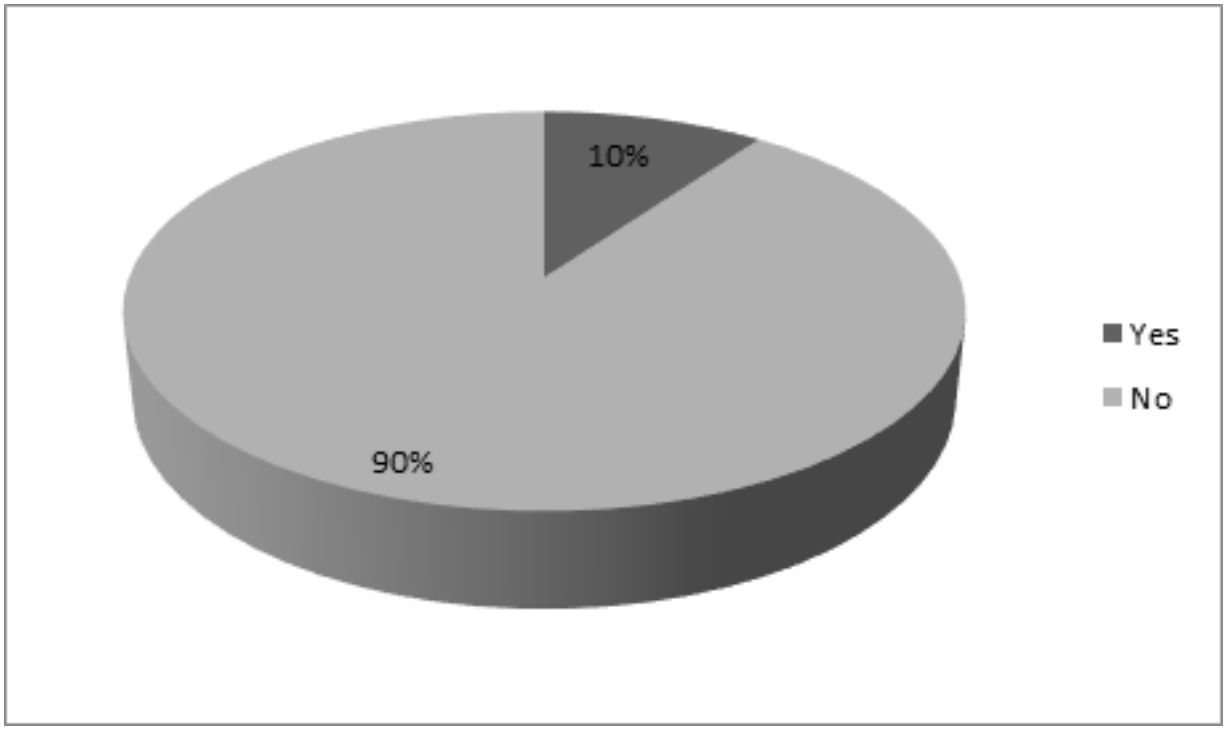

Figure 1: Distribution of respondents by importance of immunization towards a child's health, where n=117

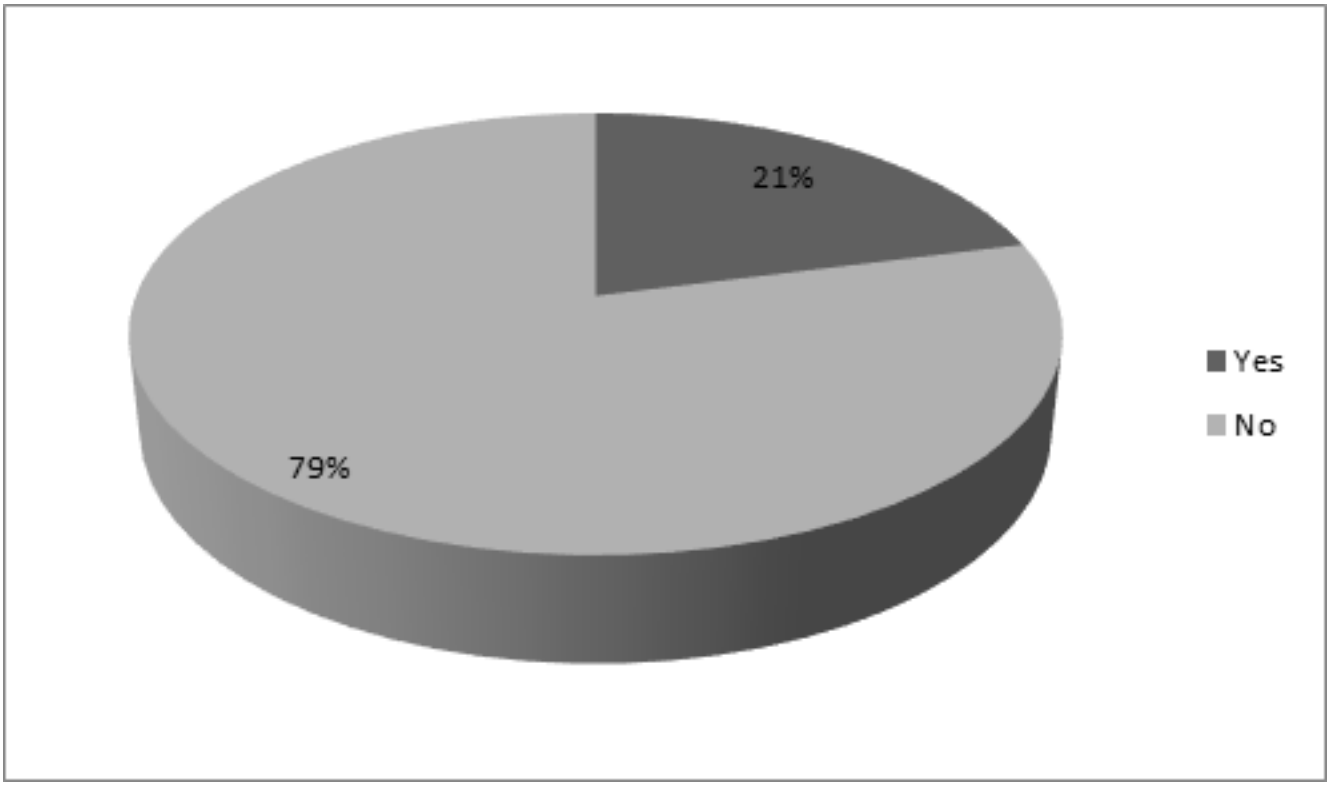

Figure 2: Distribution of respondents who would encourage others to bring their children for immunization, where n=117

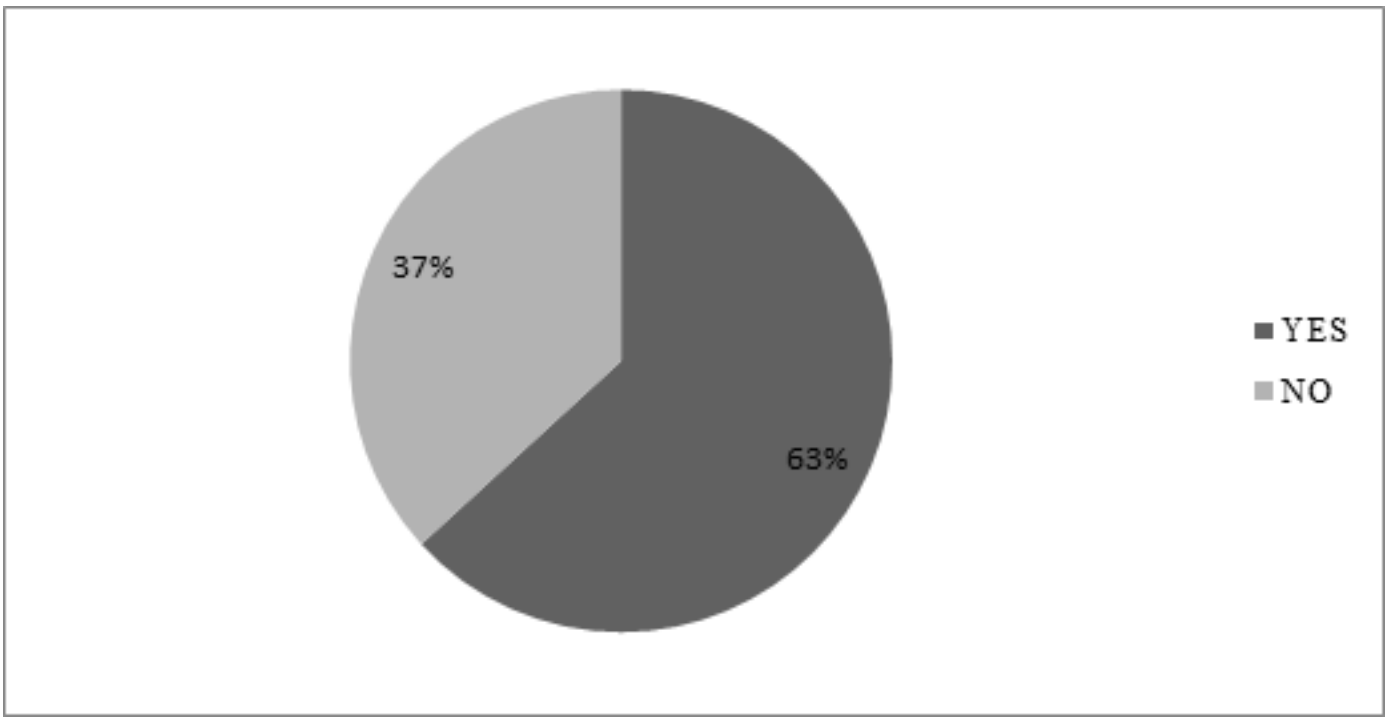

Figure 3: Showing children's immunization schedule according to the recommended immunization guidelines, where n=177

immunization schedule is according to the recommended immunization guidelines.

In Table 8, the majority 91(77.8%) of the respondents had never utilized outreach immunization services and only a few 26(22.2%) had ever utilized outreach immunization services.

4. Discussion.

4.1. Knowledge of mothers towards immunization

The majority (95.7%) of the respondents knew that immunization prevented childhood diseases rather than treating them which tolerates with the study carried out by Vonasek et al.,2016 in rural Uganda which showed that a majority (93.5%) of the women knew that immunization protected children from diseases though it disagrees with a study done by Kajungu et al., 2020 which revealed significant knowledge gaps among the women who had false ideas about the introduction of vaccines that they treated malaria and general body weakness and also thought they were being used as guinea pigs to test the vaccines before its introduction to the larger population.

All respondents were aware of some of the adverse effects secondary to vaccination and gave some of them including fever (47.9%), general body weakness (23.0%), skin rash(21.4%), and convulsions (7.7%) which contradicted with the study carried out by Malande et al., 2017 which showed that only 41.2 % of the respondents knew the possible adverse effects following immunization of their children of which the commonly known adverse effects were fever, skin rash, and convulsions.

According to the level of education, (49.6%) had attained a maximum secondary level of education, (30.8%) had attained a maximum primary level of education, (14.5%) had attained a maximum Tertiary education level and the least (5.1%) had attained no level of education implying that most of the mothers had at least been to school which was a reason as to why they knew immunization. This finding correlates with (Bbale Edwards, 2013) who showed that the percentage of children fully immunized in totality and along the individual vaccines increased with the mother's education level whereby 63% of children whose

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Table 8: Distribution of respondents according to the utilization of outreach immunization services, where n=117

RESPONSE	RESPONDENTS	PERCENTAGE (%)
YES	26	22.2
NO	91	77.8
Total	**117**	**100.0**

mothers had post-secondary education were immunized.

The majority (95.8%) of the mothers reported knowing about vaccine-preventable diseases of which (30.8%) of the mothers could mention more than 3 of their children and the least (4.2%) could not mention any which agrees with a study carried out by Gebrehiwot et al., 2017 where over (93.3%) mothers of the cases reported that they had heard about vaccine-preventable diseases, and (34.4%) mothers of the cases could name five or more types of vaccine-preventable diseases.

4.2. The attitude of mothers toward immunization

The majority (89.7%) of the respondents agreed that immunization was important for a child's health and a few (10.3%) disagreed about it giving a reason that their children would instead fall sick after being immunized which tolerates with the study carried out by Bryan et al., 2016 which showed that 90% of the mothers believed that immunization was important to their children's health and also agrees with a study carried out by Gebreeyesus et al., 2021 which showed that 86.6% respondents thought that compliance to immunization schedule was important and 88.5% believed that immunization was crucial for the health of the infant.

More than half (79.5%) of the respondents agreed that they would encourage others to bring their children for immunization which tolerates with a study carried out by Adedire et al., 2021 which showed that 82.4% of the mothers advised other mothers to take their children for routine immunization and also agrees with another study carried out by Almutairi et al., 2021 which showed that 98.1% of the respondents advised their relatives and family to vaccinate their children.

Most 64.1% of the respondents disagreed with taking their children for immunization in case an immunization campaign was conducted in their community which contradicts a study carried out by Tagbo, 2012 of which 75.4% of mothers accepted immunization on immunization campaign days and only a few 13% had out-rightly rejected immunization during campaign days.

4.3. Practices of mothers towards immunization

More than half (63.3%) of mothers chose "YES" meaning that their children's immunization schedule was according to the recommended immunization guidelines which were proved by looking at their children's immunization cards and the minority (36.8%) chose "NO" because some of them had missed most of their children's appointments for immunization since sometimes it reached when their children were sick and under medication. This study agrees with a study conducted by Shiferaw et al., 2013 in which 94.9% of mothers always brought their infants for immunization according to the schedule given by health professionals, and also agrees with another study conducted by Fatima in which 62.8% of mothers had fully complied to the child immunization schedule. This study disagrees with a study which was conducted by Mohammed et al., 2020 where only 45.2% of mothers had fully immunized their children following the child immunization schedule of which 38% were confirmed by immunization cards.

The majority77.8 % of the mothers had never utilized outreach immunization services and most of them gave their reason as vaccines that were used during the immunization outreaches not being safe which contradicts a study which was conducted by Oryema et al., 2017 in Hoima District which was found out that majority 87.4% of

children had ever utilized outreach immunization services which were due to caretakers knowledge about the benefits of childhood immunizations before community mobilization about outreach sessions.

The majority of the mothers took their children to health centers (54.7%) and hospitals (32.5%)for immunization and a few (12.8%) took their children to clinics that they considered safe. This agrees with a study carried out by Tagbo, 2012 in Nigeria which shows that 75.4% of mothers took their children to health facilities for immunization.

5. Conclusions

The study findings indicate that the majority of the mothers know child immunization, its importance towards their children's health and when a child needs to be vaccinated, the VPDs, and the recommended sites for different vaccines.

Results have shown that mothers generally have a good attitude toward the immunization of children since all had ever brought their children for immunization.

The findings revealed that mothers had good practices for immunization of their children which was portrayed by their children's child health cards.

6. Study limitations

Noncompliance of some respondents was prevented by convincing respondents to willingly participate in the study activities.

7. Recommendations

The study recommended that:

The government should come up with programs creating awareness concerning the importance of child immunization and delivery of immunization services at all health facilities among various communities as this is associated with a higher like hood of child immunization.

Secondly, health facilities providing EPI services should strengthen continuous staff motivation, regular supervision, and continuous monitoring and evaluation to detect any declines in vaccination coverage earlier

Thirdly, for children whose parents have low education status, it recommended that all health facilities always conduct health education talks to encourage and create more awareness about Vaccine-Preventable Diseases, correct false ideas known to mothers about child immunization and the values plus benefits of child immunization with its consequences to the child's health.

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9. List Of Abbreviations

AIDS: Acquired immunodeficiency syndrome
BCG : Bacille Calmette- Guerin
DPT : Diphtheria, pertussis, tetanus
EMTCT: Elimination of mother-to-child transmission
HIV: Human immunodeficiency virus
MCH: Maternal and child health
MoH: Ministry of Health
OPV : Oral polio vaccine
RCT : Randomized controlled trial
SPSS: Statistical Package for the Social Sciences
UDHS: Uganda Demographic Health Survey
UNICEF: United Nations Children's Fund
UNEPI: Uganda National Expanded Program for Immunization
VPDS: Vaccine preventable diseases

10. Source of funding.

This study was not funded.

11. Conflict of interest.

The author declares no conflict of interest

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