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KNOWLEDGE, ATTITUDE AND PRACTICES OF CARE GIVERS OF CHILDREN BELOW FIVE YEARS TOWARDS IMMUNIZATION AT NDEJJE HEALTH CENTRE IV, WAKISO DISTRICT. A CROSS-SECTIONAL STUDY.

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Abstract

Background

Immunization is an important tool for controlling and eliminating life-threatening infectious diseases and is estimated to prevent between 2 and 3 million deaths each year. The study aims to assess the knowledge, attitude, and practices of caregivers of children below five years towards immunization at Ndejje Health Centre iv, Wakiso District.

Methodology

A descriptive cross-sectional study design using a quantitative approach to assess the knowledge, attitudes, and practices of mothers/caregivers towards immunization of children below five years.

Results

Most of the respondents had the required knowledge and right attitudes that were sufficient to inform their practice towards immunization. The majority (55%) knew all the Immunizeble diseases and few respondents did not know any of the Immunizable diseases (15%). (53%) accepted that immunization protects children against deadly diseases while (47%) denied that it does not protect children against deadly diseases. (74%) accepted that immunization is important against a few (26%) who denied that immunization is not important. (60%) had immunized all their children while (40%) had not immunized all of their children. As per the immunization schedule where (80%) had not immunized their children as per the immunization schedule and (20%) had immunized their children as per the immunization schedule.

Conclusion

Married women/caregivers, professional mothers/ caregivers, and as well as male children were found to be statistically significant predictors of maternal/caregivers toward childhood immunization. The child's sex (male) and married women/caregivers showed statistical significance with mothers'/caretakers' attitudes towards childhood immunization.

Recommendation

Public health education should be intensified to improve the knowledge, attitude, and practice of mothers/caregivers on childhood immunization. Continuous professional development sessions should also be provided to health service providers in hospitals to properly deliver to shape the knowledge and attitude of caregivers.

Keywords: *Children below five years, Public health education, Immunizable diseases.*
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Background of the study

Immunization is an important tool for controlling and eliminating life-threatening infectious diseases and is estimated to prevent between 2 and 3 million deaths each year (Mekonnen et al, 2020). Health staff in developed countries rarely encounter many factors that affect the effective conducting of immunization outreaches such as in the United Kingdom and Japan because of well-funded and developed laboratory health systems (Kamimura et al, 2015). However, in under-developed countries such as Venezuela and Paraguay, health staff encounter many factors that affect health workers conducting immunization outreaches including lack of guidelines, lack of resources, and poor funding among others (Page et al, 2020). Vaccine-preventable diseases contribute significantly to morbidity and mortality; an estimated 4 million people die each year from diseases from which vaccines are available (WHO, 2015). Diarrhea and Pneumonia diseases account for approximately 34% of the world's 10.4 million deaths in children less than 5 years of age (WHO, 2015). Immunization protects children increasing their chances of survival so that their right to survival is made real. Childhood illnesses like tuberculosis poliomyelitis, Measles, mumps, rubella, and diphtheria are among those covered in immunization strategies. World Health Organization (WHO) guidelines consider a child fully vaccinated with Diphtheria, Pertussis Tetanus 3rd Dose (DPT3) if they have received three doses of pentavalent vaccine DPT-Hep-B-Hib by the age of fourteen weeks (Gentle, 2019). In Ethiopia and Nigeria, the factors affecting the management of laboratory services include the inadequate provision of supplies and resources such as testing kits, unreliable electricity, and poorly maintained and serviced laboratory equipment among others. In East African countries including Kenya and Tanzania, many factors affect health workers in conducting childhood immunization and these include lack of resources such as

running water in facilities, inadequate and poorly maintained equipment, inadequate infrastructure, and understaffing among others (Shobowale et al, 2017). In Uganda, the Ministry of Health reports that the coverage of immunization for children is below that planned in the standards development goals. The Ministry of Health (MOH) recommends the provision of accessible, efficient, and quality immunization outreaches. However, conducting childhood immunization is greatly affected by various factors including poorly set up services, inadequate staffing, provision of resources such as vehicles for the transport of staff and vaccines, and lack of fridges for effective cold chain management among other factors (Ochan et al, 2018). The study aims to assess the knowledge, attitude, and practices of caregivers of children below five years towards immunization at Ndejje Health Centre iv, Wakiso District.

Methodology

Study Design

A descriptive cross-sectional study design using a quantitative approach to assess the knowledge, attitudes, and practices of mothers/caregivers towards immunization of children below five years. This study design was selected because it was suitable for identifying and describing relationships between two or more variables in a single population at a single point in time.

Study Area.

The study was conducted at Ndejje Health Centre IV, Wakiso District which is located in the central region of Uganda it's approximately 10.9km from Kampala city and 4.4km off Entebbe road. It is a government-run healthcare facility and receives an average of 250 patients per day. It offers many health care services including immunization, obstetrics, and emergency care, HIV/AIDS management services, general patient management, laboratory services, nutrition services, family planning services, antenatal and post-natal services, EMTCT, and VCT services among others. The study area was selected because the problem of low utilization of immunization services for children less than five years of age was reported on the ground.

Study population.

The primary study included caregivers and their children below five (5) years of age who had come to the facility to receive health care services at Ndejje Health Centre IV, Wakiso District.

Sample size determination

The sample size was determined using the formula below;

QR/O (Burton, 1965)

Where;

Q= total number of days spent in data collection

R= Maximum time taken by the interviewer per day

O= Maximum time taken by the interviewer.

Therefore,

R= 5 Respondents

Q=10 Days

O= ½ Hours

QR/O=10X5/1/2

50X2= 100 Respondents

Therefore, the sample size the researcher used is 100 respondents.

Study variables.

Dependent variable

Immunization was the dependent variable.

Independent variable

Knowledge, attitude, and practices were independent variables.

Inclusion criteria

This consisted of caregivers of children below the age of five years who were around during the process of data collection and consented to take part in the study.

Sampling technique

A simple random technique was used to select the study participants from the target population. This technique was preferred because it ensures freedom from human bias and each member of the target population had an equal and independent chance of being included.

Data collection tool

Semi-structured questionnaires were designed and used by the researcher to collect data from respondents. The questionnaire was designed according to the specific objectives of the study with open and closed questions, written in English language and later translated into the local language (Luganda) for respondents who do not understand English language. The questionnaire was preferred because

it was best suited for collecting data from a larger sample considering the nature of the study population.

Data collection procedure

After approval of the research proposal; an introductory letter from the Kampala School of Health Sciences research committee to the area was obtained. When permission was granted the researcher and the trained research assistants then administered the questionnaire to the respondents through interview in a local language (Luganda). The purpose of the study was explained to the participants and data collection began with the signing of a consent form among the caregivers of children who were seeking medical services at the ANC clinic and OPD; numbers were written on a small piece of paper, rolled up then mixed appropriately and were put in a box so that every respondent who picked an even number was given the questionnaire to fill. The procedure was repeated each day until the sample size of 100 respondents was obtained.

Data analysis and presentation.

From the field, data was manually sorted, edited, and arranged according to themes based on the specific objectives of the study to generate frequency and percentage using a scientific.

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Table 1 Socio-demographic characteristics of the respondents

Age (months)	**N=100**	**Percentage (%)**
0-11	12	12
12-23	40	40
24-35	28	28
36-47	15	15
48-59	5	5
Total	**100**	**100**
Gender of children		
Male	65	65
Female	35	35
Total	**100**	**100**
Tribe		
Muganda	40	40
Munyankole	13	13
Mukiga	12	12
Musoga	10	10
Acholi	9	9
Others	16	16
Total	**100**	**100**
Religion		
Catholic	38	38
Protestant	20	20
Muslim	31	31
Others	11	11
Total	**100**	**100**
Marital status of caregivers		
Single	9	9
Married	76	76
Divorced	15	15
Total	100	100
Occupation of care givers		
Professional	30	30
Housewife	45	45
Self employed	15	15
Others	10	10
Total	100	100

Results

Demographic characteristics

From the table 1, children from (0 to 11) months were 12%, (12 to 23) months were 40%, (24 to 35) months were 28% (36 to 47) months were 15% and (48 to 59) months were 5%. Majority of the children were males with 65% and Baganda were the most in the respondents with 40% and the least being the Acholi with 9%. Catholics were many with 38% and the least percentage were the others such as the born-again Christians with 11% with majority of the respondents being married with 76% and a few respondents who were single with 9% majority of the respondents were house wives [45%] and followed by the professional care givers [30%] and the least were the others category who did not describe their occupation with 10%.

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Table 2; Knowledge towards immunization of children below five years.

Heard about immunization	N=100	**Percentage (%)**
Yes	100	100
Source of information		
Friend	60	60
Media	12	12
Health center	20	20
Others	8	8
Total	**100**	**100**
Meaning of immunization		
Administering vaccine to prevent	65	65
Routine of injecting children	5	5
Is a birth control measure	3	3
Others	27	27
Total	**100**	**100**
Immunizable diseases known		
All of them	55	55
Some of them	30	30
None of them	15	15
Total	100	100
Which is Immunizable		
Malaria	10	10
Typhoid	40	40
Tuberculosis	50	50
Total	**100**	**100**
How many visits are made		
Ten visits	64	64
Eight visits	12	12
Six visits	20	20
Four visits	4	4
Total	**100**	**100**

In table 2, all of the respondents had heard about immunization of children who are below five years. Majority of the respondents had heard about immunization from friends (60%) and few had heard it from other sources (8%) which included in class, workshops and newspapers. Majority (65%) of the respondents knew the meaning of immunization which is the administering of vaccines to prevent diseases against the minority who knew it's a birth control measure (3%), Majority of the respondents (55%) knew all the Immunizeble diseases and few respondents did not know any of the Immunizable diseases (15%). Majority of the respondents (50%) knew that tuberculosis is an Immunizable disease against a few (10%) who knew that malaria is an Immunizable disease, Majority of the respondents (64%) said that the visits made are ten against a few (4%) who said that the visits are four.

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Table 3: Attitude towards immunization of children below five years at Ndejje health center IV.

Immunization protects	**N=100**	**Percentage (%)**
Yes	53	53
No	47	47
Total	**100**	**100**
Un-immunized get diseases		
Yes	53	53
No	47	47
Total	**100**	**100**
Is immunization important		
Yes	74	74
No	26	26
Total	**100**	**100**
Is immunization necessary		
Yes	78	78
No	22	22
Total	**100**	**100**
Advice to immunize		
Yes	56	56
No	44	44
Total	**100**	**100**
Make immunization compulsory		
Yes	60	60
No	40	40
Total	**100**	**100**
Fine to punish defaulters		
Yes	35	35
No	65	65
Total	**100**	**100**
Government played good role		
Yes	40	40
No	60	60
Total	**100**	**100**
Good services		
Yes	15	15
No	85	85
Total	**100**	**100**

The results in table 3 show that majority of the respondents (53%) accepted that immunization protects children against deadly diseases while a few of them (47%) denied that it does not protect children against deadly diseases, Majority of the respondents (53%) accepted that the immunized children don't get diseases against a few (47%) who denied that even the immunized children contract the diseases, Majority of the respondents (74%) accepted that immunization is important against a few (26%) who denied that immunization is not important, Majority of the respondents (78%) accepted that immunization is necessary against a few (22%) who said that immunization is not necessary, Majority of the respondents (56%) accepted that they could advice others to immunize children while a few (44%) said they could not advice others to immunize children, Majority of the respondents (60%) accepted that immunization should be made compulsory while a few (40%) rejected the idea of making immunization compulsory, A few respondents (35%) accepted the idea of punishing the caretakers who do not immunize while the majority (65%) of the respondents denied that those who don't immunize children should not be punished, A few of the respondents (40%) accepted that the government has provided good services while majority of the respondents (60%) said that the government has not played a good role in the provision of immunization services, A few of the respondents (15%) accepted that the facility provides good immunization services against the majority (85%) who denied that there are no good services offered at Ndejje Health Center IV.

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Table 4 the practices of immunization of children below five years at Ndejje health center IV.

Immunized all children	**N=100**	**Percentage (%)**
Yes	60	60
No	40	40
Total	**100**	**100**
Immunized according to schedule		
Yes	20	20
No	80	80
Total	**100**	**100**
If NO what reasons do you have		
I forgot	20	20
I could not get the services	14	14
I felt it was not necessary	10	10
I did not have fare to the hospital	6	6
Others	50	50
Total	**100**	**100**

From the table 4, majority of the respondents (60%) had immunized all their children against a few who had not immunized their children (40%), A few respondents had immunized their children according to the immunization schedule while the majority of the respondents (80%) had not immunized their children according to the immunization schedule and majority of the respondents (50%) had other reasons for not immunizing their children according to the schedule such as fear of their children developing adverse effects while a few did not have fare to the hospital (6%) and (20%) said that they forgot to take their children for immunization.

Figure 1 shows that majority of the respondents (40%) accepted that their children received BCG and Polio O at birth against a few of the respondents (25%) who said they did not know whether their children received the vaccine.

In figure 2, majority of the respondents said that their children received the second dose at four weeks (53%), those who did not know were (27%) and the few who were not sure of the second dose was given were (20%).

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Figure 1 Shows those whose children received BCG and Polio O was given at birth at Ndejje health Center IV.

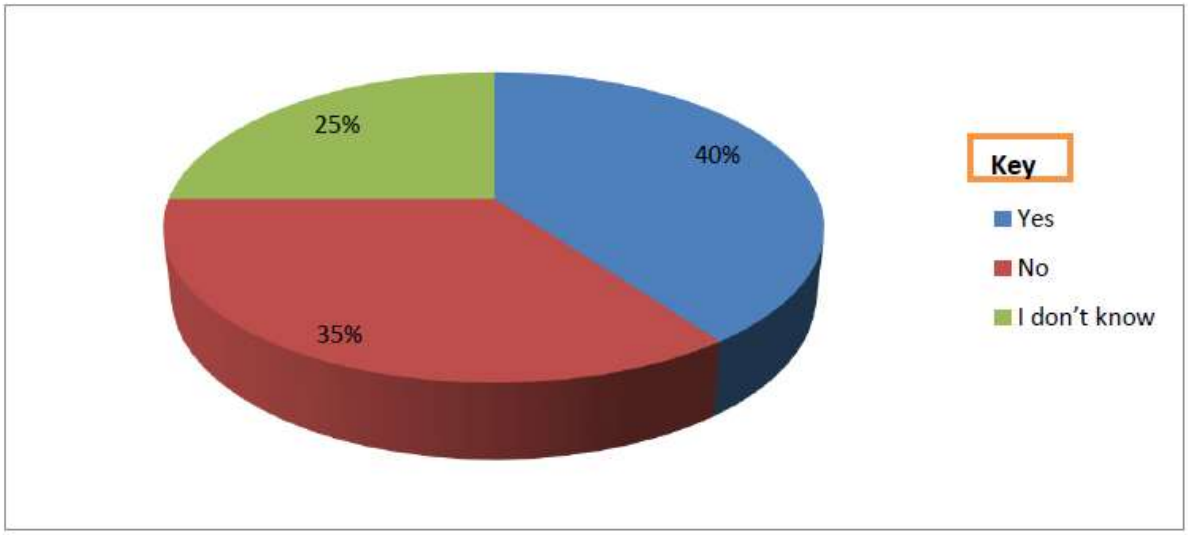

Figure 2: Children who got the second dose at four weeks (DPT, HEP-Hib1, PCV, Rota 1).

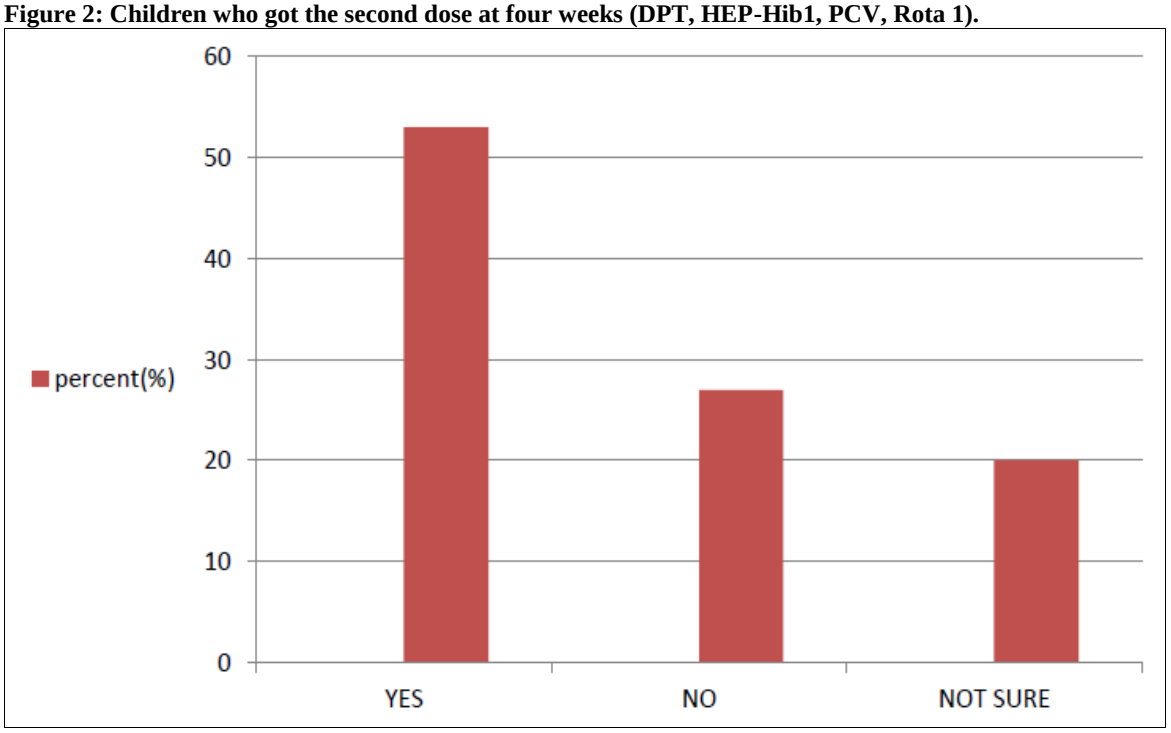

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Figure 3 shows those who received the third dose at fourteen weeks (DPT, Hep B+ Hib 2, PCV2 and Rota 2)

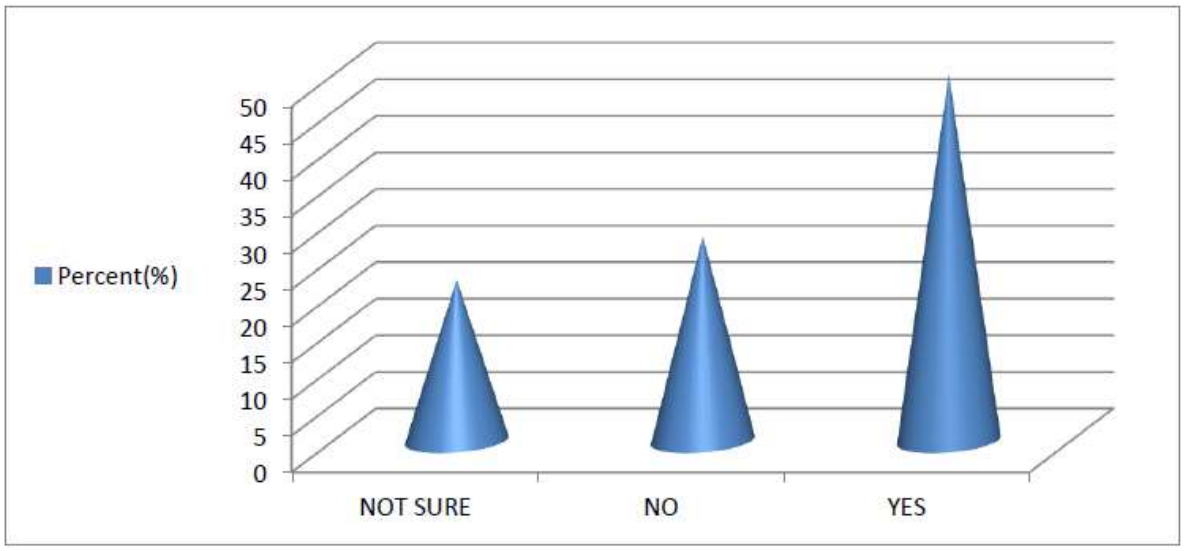


Figure 4; Show those who got the fourth dose at fourteen weeks (DPT HEP+HIB 3, PCV3 and Rota 3)

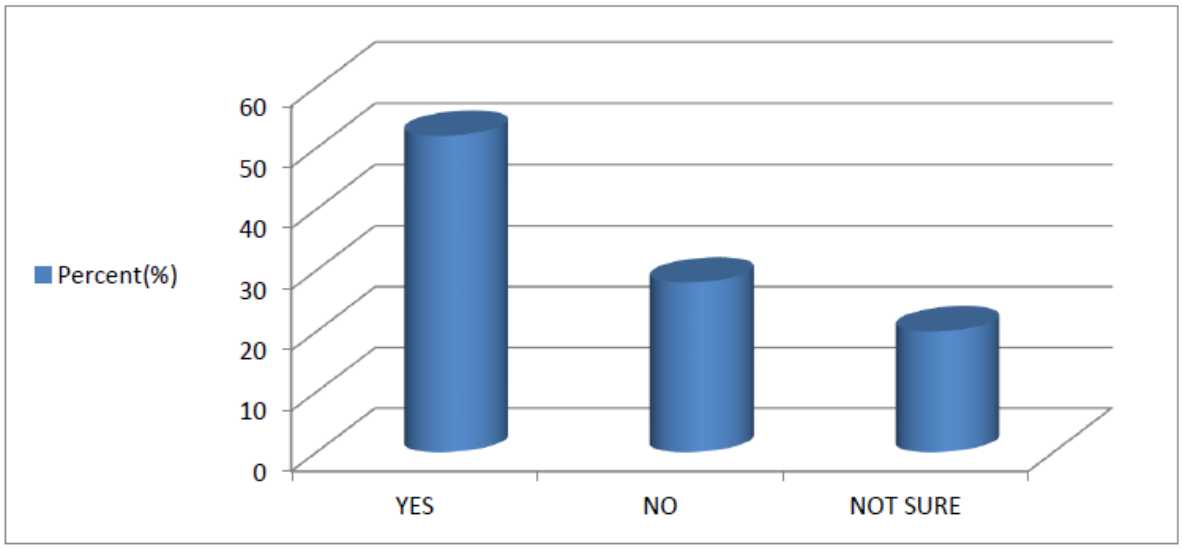
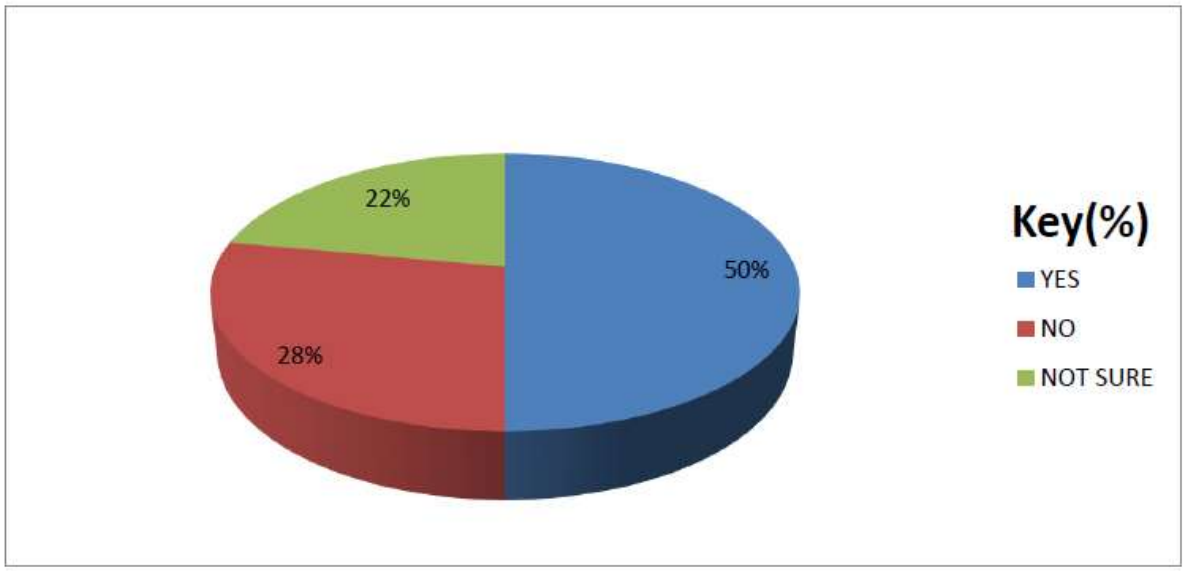


Figure 5; Shows the number of children who got vitamin A at six months.



In the figure 3: shows the majority of the respondents (50%) knew when the child got the third dose, (20%) did not know when the child got the third dose while (15%) were not sure whether the child received the vaccine or not.

In figure 4, majority of the respondents (50%) their children got the third dose at fourteen weeks, few respondents (10%) did not know when their children received the third dose and (33.3%) of the respondents were not aware of when their children received the fourth dose.

In figure 5, majority of the respondents (50%) their children had received vitamin A at six months, (28%) of the children of the respondents did not know whether their children got vitamin A and few of the respondents were not sure if their children got vitamin A.

Table 5; Children who got measles vaccine at 9 months and those who were dewormed at the end of one year.

Got measles at vaccine 9 months	**N=100**	**Percent**
Yes	52	52
No	18	18
Not sure	30	30
Total	**100**	**100**
Dewormed at one year		
Yes	51	51
No	19	19
Not sure	30	30
Total	**100**	**100**

Table 5 shows the majority of the respondents (52%) their children had received the Measles vaccine at 9 months, (18%) did not know whether their children had got the Measles vaccine at 9 months and (30%) were not sure whether their children had received Measles vaccine at 9 months or not.

The majority of the respondents (51%) their children were dewormed at one year, a few (19%) did not know whether their children were dewormed at one year and (30%) of the respondents were not sure whether their children were dewormed or not.

Discussion

Knowledge towards immunization of children below five years.

The knowledge of the respondents was determined depending on whether the respondent had heard about immunization and all caregivers had heard about immunization and majority got information from friends 60% and the least got it from other sources such as schools, the meaning of immunization where the majority knew the meaning with 65%and the rest did not know the meaning of immunization, the knowledge of diseases children are immunized against where 55% knew all the Immunizable diseases and 30% knew some diseases while 15% knew

none of the Immunizable diseases, and the number of immunization visits made during immunization of children below five years whereby the majority of the respondents wrote that ten visits are made 64% and the least knew the number of visits which were between six to four visits 24%. According to the findings of the study carried out at Ndejje Health Center IV showed that the respondents had fair knowledge about the immunization of children below five years (64.8%). These results could be attributed to the fact that the majority of the respondents were housewives with insufficient levels of education and were unable to understand immunization. This was supported by a study conducted in Northwest Ethiopia which revealed that parents who were in secondary or higher level of education were 2.788 folds more likely to be knowledgeable about childhood immunization than primary or lower level. (GebreEyesus et al. 2021). Another probable reason for these results is the absence of sensitization and education of caregivers on the benefits of immunization and vaccine-preventable diseases during routine immunization services. Lastly, the lack of sensitization and community outreaches about immunization could also be a significant reason behind the results.

Most respondents had ever heard about immunization from friends (60%) and healthcare personnel (20%), this is not similar to the findings of a study done in which found out that Health workers were reported in the survey (85.2%) as the most important (and commonest) source of immunization information (Akwataghibe et al, 2019).

This indicates that health workers should be empowered and encouraged to educate the population on immunization practices. Communication channels like radios and TV stations should also be routinely employed to provide immunization information. This is because these means have greater population coverage.

Ministry of Health provides routine immunization for several childhood diseases, including polio, measles, tuberculosis, pneumonia, hepatitis, diarrhea, diphtheria, tetanus, and whooping cough. Most of the caregivers averagely knew that tuberculosis is an Immunizable disease which might be caused by insufficient knowledge about immunization (50%).

The attitude of mothers towards the immunization of children below five years

The attitude towards immunization was measured by asking the respondents whether it's important to immunize all children below five years and (53%) accepted it importance while (47%) denied that immunization does not protect their children against Immunizable diseases, advice to others to immunize children and here(56%) accepted that they can advise others to immunize their children with (44%) who rejected that they can never advice others to immunize their children below five years, making of immunization compulsory for all by the government and here (60%) accepted the idea while (40%) denied that it is not fine for the government to make immunization compulsory, punishing those who fail to immunize their children where by majority of them did not accept the idea (65%) with a few who accepted that it is ok for the government to punish those who do not immunize their children, The importance of immunization to children below five years and most agreed that immunization is important with (74%) and the least disagreed with the idea (26%) and the standards of immunization services offered at Ndejje health center IV and here majority of the respondents denied that the facility provides poor services (85%) and a few accepted that the facility provides better services (15%) . However positive attitudes towards immunization motivate caregivers to go for immunization services. The positive attitudes assessed in this study involved if immunization is important is safe, the best for every child, recommended for every child, should be given according to schedule, and is effective in preventing infectious diseases. In this study, the majority of participants agreed that vaccination is important (74 %), they can advise others to immunize their children[53%], making immunization compulsory by the government[60%], punishing all caregivers who fail to take their children for immunization of which most of them strongly disagreed with that idea and whether the facility of Ndejje health center IV was providing quality standards of the services and most of them strongly dis agreed [15%]which is very low for such a health facility at the level. The results are similar to those of a study by Ali AHM in South Sudan where the majority (99.2%) of the mothers had a positive attitude 98.4% would recommend immunization for others, (and 100%) said they were responsible for the immunization of their children, 98.4% thought that immunization is important and 99.2% thought it was safe for their children (Ali AHM et al, 2020)

Negative attitudes predispose to poor practice towards immunization of children less than five years old. The favorable attitudes towards immunization observed in this study were probably attributed to the poor quality of services rendered by the facility the majority being housewives (45%) and not employed with a low level of education observed in the majority of the respondents. This was shown by one study which showed that respondents who attended primary and secondary school were less likely to have a favorable attitude towards immunization than parents who attended higher education (GebreEyesus et al., 2021). Adequate knowledge helps to address the negative beliefs of participants hence improving their attitudes toward immunization. These results should thus act as benchmarks for improving attitudes towards immunization in different communities in Uganda.

Practices of caregivers towards immunization of children below five years

The practices of immunization were measured using the immunization schedule where the respondents were asked whether they had immunized all their children (60%)

had immunized all their children while (40%) had not immunized all of their children. As per the immunization schedule where (80%) had not immunized their children as per the immunization schedule and (20%) had immunized their children as per the immunization schedule which is a very low percentage as expected by the Ministry of Health and UNEPI, a newborn is supposed to receive the BCG and oral polio zero (0) vaccines at birth and here the majority of the children were immunized at birth (40%), those who did not immunize were (35%) and the majority (25%) did not know whether their children were immunized at birth. These findings are compared to a study by Dansoin Ghana which revealed that the caregivers in the community had poor knowledge of vaccination and its benefits, and therefore, with no strict adherence to vaccination schedules that promoted the incomplete immunization of children in the community by their caregiver (Danso et al,2023)

In this study, caregivers who were married were about four times more likely to have a favorable attitude toward immunization than single ones. This is probably because they have social and economic support from their spouses These results are similar to those of a study conducted in Lebanon where being single compared to married was significantly associated with the worse practice of immunization (Matta et al, 2020). As a strength, this study provides good supplementary information for stakeholders who want to undertake any further interventions, for instance at national, regional, community, and health facility levels, so that a valid and standardized way for assessing caregiver Knowledge, attitude, and practices of caregivers towards immunization of children below five years is ascertained. Furthermore, the study can also be used while conducting future research to find out the effect of the findings listed in the study above.

Conclusion

The above study about the knowledge attitude and practices of caregivers towards immunization of children below five years at Ndejje Health Center IV in Wakiso district revealed that even though the majority of participants had insufficient knowledge about infant immunization, most of them received information on immunization from the hospital.

Although most respondents had an unfavorable attitude towards infant immunization, the majority of them agreed that vaccination is crucial and safe for the health of the infant. They also showed poor practices about childhood vaccination, although most of the childhood immunization schedules were up to date and a majority number of children did not miss any immunization

Married women/caregivers, professional mothers/ caregivers, and as well as the male child were found to be statistically significant predictors of maternal/caregivers toward childhood immunization. The child's sex (male) and married women/caregivers showed statistical significance with mothers'/caretakers' attitude towards childhood immunization, whereas respondents who are professional workers were statistically associated with insufficient knowledge towards childhood immunization.

Recommendation

According to this study, public health education should be intensified to improve the knowledge, attitude, and practice of mothers/caregivers on childhood immunization. Continuous professional development sessions should also be provided to health service providers in hospitals to properly deliver shape knowledge and attitude during the dissemination of information to mothers/caregivers.

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List of Abbreviations

BCG : Bacillus Calmette Guerin

DPT3 : Diphtheria, Pertussis and Tetanus 3

UNEPI : Uganda National Expanded Program of Immunization

WHO: World Health Organization

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Conflict of interest

No conflict of interest.

Author Biography

Shafik Kavuma is a student of a diploma in clinical medicine and community health at Kampala school of health sciences.

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