

Immunization Coverage And Its Determinants Among Under-Five Children Aged 12 To 59 Months In Mtendere Township Of Lusaka Urban District

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Abstract

The main objective of the study was to investigate attainment of full immunization coverage among under -five children in Mtendere township of Lusaka urban district.

This Cross-sectional study recruited households that had children who were under 5 years old. Data was collected from parents or guardians of the children using a questionnaire. Information was also retrieved from Immunization cards.

A total of 339 participants were recruited. Eighty-eight percent of the participants presented immunization cards for their children. There was statistically no significant association between immunization of children and marital status of the participants ($p=0.994$); gender and child immunization ($p=0.0004$); immunization of children and education level ($p=0.636$) and between immunization of children and participant's monthly income ($p=0.263$). There was a statistically significant relationship between immunization of children and religious affiliation ($p=0.05$).

Immunization of children in Mtendere is higher than before. There is need for interventions to improve the proportion of complete immunization for children in the area. The Ministry of Health through relevant authorities should endeavor to sensitize parents about the importance of completing the immunization schedule, especially with regard to Measles.

Keywords: Immunization, under-five, Mtendere township

Introduction

Immunization is an effective public health intervention to reduce morbidity and mortality among infants. It is an important means of controlling diseases, and has been considered the most cost-effective health intervention (Centers for Disease Control [CDC], 2016; Pan American Health Organization [PAHO], 2018; World Health Organization [WHO] 2010; WHO/United Nations Children's Fund [UNICEF], 2011). Immunization has brought sound health to many children in the world, reduced the agony experienced by parents during child rearing and reduced the mortality rate among children (Borus P.K.(2014, 2015,). The use of immunization services however requires acceptability from the target community. This means that for immunization services to be used there must be a clear understanding of the benefits of vaccination among community members, a readiness for providing vaccination by the health services, and interventions to overcome access barriers to immunization services.

Increasing immunization coverage for childhood diseases has become an important developmental issue (Delivery of Improved Services for Health [DISH], 2012; WHO, 2018) and an area that requires more research. Based on WHO/UNICEF (2011) report, global immunization coverage continues to increase dramatically. Global data shows that infants less than one year of age immunized with DPT, (the three doses of the combined vaccine against diphtheria, pertussis and tetanus) increased from 20% in 1980 to 79% in 2006. The percentage of children immunized with three doses of polio vaccine in 2006 rose from 22% in 1980 to 80%. Global coverage for measles increased from 16% in 1980 to 80% in 2006. However, these increases are still falling short of the 2010 target of 90% set by WHO/UNICEF Global Immunization Vision and Strategy. It is argued that further increases in coverage of DPT, Polio and Measles would save millions of infant lives

Morbidity and mortality caused by diseases that are preventable by vaccine are still very high in many developing countries across the world (MOH, 2011). Fifteen percent of deaths in children who are less than five years of age are attributed to these diseases (WHO, 2012). According to WHO, although numerous interventions have been made to increase immunization coverage, full immunization coverage in Zambia remains relatively low at 68% (Chofwe & Kwangu, 2018). Although no data is available on deaths caused by vaccine preventable diseases, the figures pertaining to the average under-five mortality rate in Zambia have shown an impressive decline by 61 percent from 191 deaths per 1,000 live births to 75

deaths per 1,000 live births between 1992 and 2014 (Chofwe & Kwangu, 2018).

The report from Lusaka District Health Systems (LDHS 2018) further states that Mtendere clinic of Lusaka urban District has a catchment population of about 123, 503 of which 20, 552 are under-five children representing a 17% of the total population. The author, during her practice at Mtendere clinic observed children who were not fully immunized. In addition, there are quite a number of preventable diseases like diarrhea and pneumonia among under-five children at Mtendere clinic which signifies that some children are not fully immunized. Factors associated with failure to realize full immunization in mtendere are still unknown. Therefore, this study sought to describe immunization coverage and investigate the factors associated with failure to complete childhood immunization in Mtendere Township. Having been implementing different UNICEF and WHO strategies to boost immunization coverage, some parts of the country are still recording the coverage of less than 68% (Chofwe & Kwangu, 2018).

It is also not clear the extent to which most of the mothers respond to immunization. Hence this study also investigated the knowledge levels of parents on the importance of accessing full immunization for their children in Mtendere township of Lusaka urban District. There is also insufficient literature on factors (either cultural or socioeconomic) that affect mothers from ensuring full immunization coverage of their under-five children. The main objective of the study was to investigate attainment of full immunization coverage among under -five children in Mtendere township of Lusaka urban district.

Methodology

The study adopted a cross-section design to understand the immunization coverage for vaccine preventable diseases among children who were under-five years. The target population that was considered for the study were households that had children who were under 5 years old in Mtendere Township. Children whose parents refused to be included in the study and those with missing critical information were excluded. A one stage sampling procedure technique was used to sample children that were eligible for inclusion. There are ten clusters in Mtendere Township. Based on probability proportional to the size of the population, households were selected randomly and subsequently until a reasonable number was achieved. If the selected household has no eligible child, the next household was selected. In case where there was one eligible child in a household, the child was included. At the household level, the mother was

selected as the respondent. The father or caregiver was used only if the mother was unavailable and this was the case in some households. The survey systems software (survey systems.com/sscalc.htm) was used to calculate the sample size. The following assumptions were used to determine the sample size. Mtendere has a population of 20,552 under-five children (District Health

Survey System 2019). Considering a confidence level of 95% and confidence interval of 5, the sample size of 351 under-five children was determined, which is 1.8% of the total population of households with under-five children in the area. Therefore 1.8% of children were selected from each cluster as shown below

Table 1. Number of households per zone |cluster

ZONES	No. of Households	Approximate No. of children in each cluster	1.8% of children under-five Per Cluster
Zone 1	2653	2122	38
Zone 2	3120	2496	45
Zone 3	3025	2420	44
Zone 4	1030	824	15
Zone 5	1033	826	15
Zone 6	1206	964	17
Zone 7	2522	2017	36
Zone 8	2810	2248	40
Zone 9	1482	1185	21
Zone 10	5572	4457	80
TOTAL	24453	19 559	351

Data was collected from primary sources who were the parents with under five children in Mtendere Township. The researcher designed the data collection tool which comprised of a questionnaire. Structured interviews were scheduled with parents and care givers. The Plan for data collection included: permission to proceed, data collection and data handling procedure. The study used both Primary and Secondary sources to obtain needed data among selected households in Mtendere Township. Method of data collection was through administration of a questionnaire that contained both closed ended and open ended questions which was conducted in English and Nyanja. The collected information was checked for completeness of the questionnaires. The questionnaires were given a code and stored in files. The data was also entered into excel and a backup copy stored on an external hard drive. Data were computed into Microsoft Excel by the researcher. The researcher double checked data entered in excel for consistencies using source documents. The data were then imported into the Statistical Package for Social Science (version 16.0). General descriptive and inferential analyses were used to analyze the data. Means, frequencies, 95% confidence intervals and standard versions

were used to compute descriptive statistics for continuous and categorical data. Statistical comparisons of nominal, ordinal and continuous variables were done by using SPSS . The chi-square test was used for categorical data. The level of significance was set at 0.05. Any p-value of less than 0'05 was reported as statistically significant. Chi-square Test was used to measure the relationship between independent and dependent variables. Statistical significance was set at 0.05.

Prior to data collection, ethical clearance was obtained from the Lusaka Apex Medical University Research Ethics Committee (LAMUREC REFNO. 102-20). Permission was requested and granted by the Lusaka District Health Offices to conduct the study. Informed consent was obtained from all the participants. Participants were informed of what the study was about and asked to participate and that they could withdraw at any time without any repurcations. The respondents were not exposed to any physical and emotional danger or harm. Confidentiality and anonymity was maintained. Respondents were interviewed one at a time in a room to ensure privacy. After each interview

session, the investigator kept all questionnaires under lock and key and no persons other than the researcher was allowed to access the collected data.

Results

Background Characteristics of participants

Age of Participants

The age distribution of respondents is presented in Table 2 below;

Table 2: Age of Participants
(n=339)

AGE GROUP	FREQUENCY	PERCENTAGE (%)
15-19	25	7.4
20-24	83	24.5
25-29	94	27.7
30-34	69	20.4
35-39	42	12.4
40 >	26	7.7
Total	339	100.0

Table: 3 Age and Gender characteristics of under-five children

AGE (YRS)	FREQUENCY		TOTAL
	MALE	FEMALE	
0 – 1	48	31	79
1 – 2	52	41	93
2 – 3	62	29	91
3 – 4	23	52	75
4 – 5	20	11	31
TOTAL	205	164	369

The majority of the mothers/caregivers were aged between 25 and 29 according to Table 2. The highest frequency for children was recorded for the age category of 1 to 2 years. It was observed that there were parents or caregivers with over 1 child falling within the desired age category. The majority of the participants were female, accounting for 95% of the total number of participants.

From the 339 participants that were captured for this study, only 14.2% of the participants had obtained university education, 20.1% of the participants had obtained college level education,

a higher percentage (32.4%), was observed for those that had completed basic education and seemed to have been the majority of all the participants. 23% was composed of those that had completed secondary education. There was also recorded a 10.3% of the participants that had not acquired any formal education. Most of the participants (31%) were unemployed. participants working full time was composed of 22.1% of the total participants and 16.8% were part-time workers. Eight percent of the participants were still in school, 11.5% were self-employed and 10.6% had retired from formal employment.

Immunization Coverage

Out of the 339 participants that were reached, 298 (87.9%) of the participants presented immunization cards of their children during the study, while 41 (12.1%) of the participants did not present immunization cards of their children. Out of the 339 participants, 69.9% had taken their children for measles vaccination and the remaining 30.1 % did not. It was observed that 89% of the participants had taken their children for diphtheria, pertussis (whooping cough), and tetanus (DPT). The research further revealed that out of the 89% parents who had taken their children

for the DPT vaccine, all of them had completed the immunization schedule. Results obtained from the survey show that out of the 339 participants, 91% had taken their children for Polio vaccination. The study further revealed that out of 91% parents who took their children for Polio immunization, 60% completed the immunization schedule.

Participants’ Perceptions about Factors Affecting Immunization Coverage

Perceptions of individuals on immunization coverage vary.

Table 4: Participant’s Perceptions

Participants’ perceptions	Yes (%)
The attitude of mothers is important in enhancing utilization of immunization services.	94%
Community awareness is important in promoting immunization services.	100%
Availability of health facilities enhances immunization services.	78%
Availability of immunization equipment enhances use of immunization services.	79%
Mother’s knowledge on immunization activities enhances the use of immunization services.	60%
Place of delivery enhances the utilization of immunization services.	98%
Short distance to immunization centers encourages mothers to take children to health centers.	92%
Decentralization of health services is essential in enhancing utilization of immunization services.	58%
Migration of families (change of residence of families) affects utilization of immunization services.	34%
The use of mass media is a strong tool for promotion of immunization utilization of immunization services.	80%
The level of education of the mother is important in enhancing utilization of immunization services.	61%
The age of the mother is important in enhancing utilization of immunization services.	47%
Community health workers play a role in enhancing delivery of services.	94%
Marital status of mothers is important in enhancing utilization of immunization services.	69%
Goodwill of the local leaders to mobilize and support immunization enhances delivery of immunization services..	72%
Anti-vaccine rumors (propaganda against vaccine) affect use of immunization services.	49%
Bad weather conditions affect the utilization of immunization services	80%
The use of mobile vaccination teams enhances utilization of immunization services.	97%

Table 5: Marital Status

MARITAL STATUS	IMMUNIZED		NOT IMMUNIZED		TOTAL
	Observed	Expected	Observed	Expected	
MARRIED	139	138.5	12	12.5	151
COHABITING	113	111.9	9	10.1	122
SINGLE	42	42.2	4	3.8	46
DIVORCED	10	10.1	1	0.9	11
WIDOWED	7	8.3	2	0.7	9
TOTAL	311		28		339

Marital status was stratified into five categories with married participants contributing the highest percentage (44.5%), followed by those cohabiting (35.9%). Thirteen percent of the participants were single, 3.2% were either separated or divorced and 2.7% widowed. The observed frequencies of the participants that had taken their children to be immunized was higher than

the observed frequencies of the participants that had not taken their children for immunization in all the five categories. There was statistically no significant association between immunization of children and marital status of the participants ($p= 0.994$). The relationship between gender and child immunization was statistically significant ($p=0.0004$)

Table 6: Participants Level of Education

LEVEL OF EDUCATION	IMMUNIZED		NOT IMMUNIZED		TOTAL
	Observed	Expected	Observed	Expected	
University	48	44	0	4	48
College	65	62.4	3	5.6	68
Basic Education	101	100.9	9	9.1	110
Secondary Education	73	71.6	5	6.4	78
Uneducated	24	32.1	11	2.9	35
TOTAL	311		28		339

From the 311 participants that had taken their children for immunization, 32.5% had attained at least basic education while 35% had attained primary education. There was no significant

relationship between immunization of children and education level ($p=0.636$)

Table 7: Participants Employment Status

EMPLOYMENT STATUS	IMMUNIZED		NOT IMMUNIZED		TOTAL
	Observed	Expected	Observed	Expected	
Full-Time Employment	68	68.8	7	6.2	75
Part-Time Employment	57	52.3	0	4.7	57
Unemployed	94	96.3	11	8.7	105
In-School	22	24.8	5	2.2	27
Self-employed	36	35.8	3	3.2	39
Retired	34	33	2	3	36
TOTAL	311		28		339

Statistically, the employment status of the caregiver had no significant influence on attainment of full immunization coverage ($p = 0.974$). There was no statistically significant relationship between immunization of children and participant's monthly income ($p = 0.263$). A total of 311 participants took their children for immunization of which 30.1% were Catholics, 22.8% were SDA, 21.2% were Pentecostal, 17.7% belonged to UCZ, and 4.2% represented those that were not affiliated to any religion. There was a statistically significant relationship between immunization of children and religious affiliation ($p = 0.05$). A total of 311 participants had taken their children for immunization out of which 28.6% were in the age group 25-29 years, 25.4% were between 20-24, 21.5% were between 30-34 years, 11.6% were between 35 and 39 years, 7.4% were teens between 15 - 19 years and 5.4% were above 40. Age of mothers had no significant influence on immunization of a child ($p = 0.758$).

Discussion

The current study was designed to identify predictors influencing full child immunization among 12-59 months old in Mtendere. The percentage of children that were fully immunized according to the research findings from the selected sample was found to be 91.7%. Comparing the immunization coverage of children between ages 12-59 months in Lusaka with that of NDHS 2018, the percent of children fully vaccinated is higher by 19%. It is also higher than the national immunization coverage survey that has reported 75% of children aged 12-59 months that were fully immunized as at 2018. Results of the study indicate that immunization coverage in Mtendere has tremendously improved as evidenced by the percentages of parents and caregivers who took their children for immunization

from the sample that was picked, giving coverage of 91.7%. The significant predictors of full immunization in this study were maternal education, employment status, religion, level of monthly income, distance to health facility, sex of the caregiver, antenatal care use and mother's age.

Maternal Education

There was a strong positive association between maternal education and full immunization. Education helps to improve health seeking behavior of an individual. This finding is consistent with other literatures that found that maternal education was a significant predictor of completeness of immunization because highly educated mothers will be more aware of the importance of immunization. The role of maternal education is an important cause of immunization uptake. In contrast, in a study conducted in Libya by Mabrouka and Bofarraj (2011), there was no significant relationship between immunization status and mothers' educational level. A study in Zimbabwe by Mukunga (2015) revealed that Children of mothers with sec implies a high literacy rate among respondents. onday education and higher were 2 times more likely to be fully vaccinated than children with uneducated others. It is also important to note that out of 339 respondents, 14.2% had obtained university education, 20.1% had obtained college level education, 32.4% had completed basic education. Twenty-three percent had completed secondary education and only 10.3% had no formal education. This implies a high literacy rate among respondents.

Distances from Health Facilities

According to a study conducted on the reasons for non-vaccination and the effects of socio-demographic factors on

vaccinations, it was revealed that distance from the health facility is significantly related to the level of immunization coverage (Sebahat & Nadi 2014). Similarly, in Kenya, a study by Ndiritu et al. (2016) on immunization coverage showed that immunization coverage declined with increasing distance from the vaccination clinics in the area.

Mothers' occupation is another factor that influences vaccination uptake. Occupation can influence mothers' likelihood to seek immunization for their child. On the contrary, this study showed that mothers' occupation had no significantly associated with higher or lower likelihood of full immunization. Result also showed that there is evidence that ages of mother predicts child immunization. This could be because elder mothers know the effect and the importance of immunization on children than young women. This finding is the same with the study conducted in Sudan by Ibnouf et al. (2014).

Availability of health facilities is also an important predictor of full immunization coverage. Research conducted by Singh and Yadav (2010), on childhood immunization in urban slums of India, found out that slum dwellers did not access these services. It was argued that weak community organization and low collective confidence in public institutions were responsible for this scenario. On the other hand, although this study indicated that availability of health infrastructure was one of the reasons why immunization coverage in Mtendere was high, findings of a study on health infrastructure and immunization coverage in rural India, revealed that the availability of health infrastructure did not necessarily lead to wider immunization coverage (Datar, Mukherji & Sood 2015). These differences can be attributed to the fact that the current study was conducted in an urban setting with availability of many private clinics, health centres and hospitals. For example, a study on immunization in rural Malawi indicated that low compliance to vaccination recommendations was associated with living in villages where there were no vaccination teams (Vaahtera et al., 2010). The findings were further in agreement with those of Ibnouf et al. (2014) in Sudan which revealed that children in urban areas were more likely to be immunized than those in rural settings.

Findings of this study also revealed that most parents normally complete the Polio and DPT immunization schedules but fail to complete the Measles schedule, where immunization is carried out at 9 months after delivery. On the other hand, a study by Cheyne (2016), on immunization in urban areas in China revealed that failure to complete immunization in urban areas was associated with mother's unawareness about repeat visits to achieve complete immunization rather than vaccine awareness. This

led to failure by mothers to make repeated visits to achieve complete immunization.

Gender

Results from the survey also indicate that the majority of the respondents were female, accounting for 95% of the total number of respondents. This has an impact on the level of immunization in the area because it is normally the mothers who are involved in children's nursing, upbringing and immunization. Very few men or fathers take interest in knowing when the child is due for immunization. The data gathered from the survey did not differ from the facts. It was discovered children that are left in the care of male guardians were less likely to be taken for immunization than those that were left in the care of female guardians. Another study done GAVI (2019) revealed that division of labour in the household may detract from fathers' involvement with childcare duties, including vaccination. On the hand, a study from International Journal for Diseases (2012) states that the woman lacking decision-making autonomy was associated with a lower likelihood of fully immunizing the child. Although available literature shows that the average routine immunization coverage in Luaska district for children aged 12 to 59 months was 73% with the national coverage 75% (ZDHS, 2018), these coverage rates were still below the targeted score of 80% as per UNEPI Standards. It should be noted however, that immunization coverage in Mtendere township is currently higher than what is targeted by UNEPI with over 80% of the children immunized.

Perceptions about factors affecting immunization coverage of respondents varied. Almost all respondents believed that the attitude of mothers was important in enhancing utilization of immunization services in Mtendere due to the fact that in an African setting women play a fundamental role in health up bring of children. 49% of the respondents indicated that anti-vaccine rumors do not affected the use of immunization services this is because a lot of advocacy has been done by all the stake holders and it is hoped that in the years to come more Zambians will have a positive attitude towards immunization. Almost all of the respondents believed that the use of mobile vaccination teams enhanced utilization of immunization services in Mtendere, it is important to note that mobile vaccination teams have been more popular in rural areas than urban areas. The fact that Mtendere is urban, implies that immunization centers are more accessible due to short distances.

Marital Status and Monthly Income

Analysis of association carried out indicated that there was no relationship between marital status, and employment status and full immunization coverage. However, marital status and employment status had no significant relationship with parents taking their children for immunization. In essence married parents are in position to complete immunization schedules for immunization of their children than those who were still cohabiting due to the strong collective ownership, care and upbringing of the growing child.

On the other hand, parents with more income should be able to complete the immunization schedules due to the fact that are in position to raise the required costs. It is also important to note that parents incur some costs every time they take children for immunization which some of the poor mothers cannot afford. Which can highly affects completion of immunization during pregnancy are likely to get full immunization. This could be true because antenatal clinic also facilitates sensitization of women on immunization programme (Mutua et al., 2011). This is consistent with the finding in the research conducted by Adetokumbo et al. (2013) that showed that about 65% of the women got their awareness of immunization at the antenatal clinics. A study done by Kaptoo and Moses (2015) in Kenya revealed that a child born to a family that earns less per month is 3 (three) times more likely not to be fully immunized compared to one born to a family who earns more. Other investigators from Zimbabwe by Mukungwa (2015) have also found that wealth status was also associated with full vaccination. Children of mothers who were rich were 2 times more likely to receive full vaccination than children whose mothers were poor.

Place of Birth

Place of delivery was significant in this study, the same was found in the study conducted in Niger Delta area of Nigeria by Oyo-Ita et al. (2012). A child that is born in a health facility would have more access to immunization than a child born at a non-health facility. At birth, a child is given Polio 0 and this makes the parent to be aware of immunization. Similar findings have been reported in previous studies (Luman et al., 2011; Oladokun et al., 2016). Also, this study shows that a child whose mother attended antenatal clinic regularly

Religious Affiliation

Religion was also found to be significant. This is consistent with the result of the research conducted in Nigeria by Babalola

(2010). Misconception by Muslims affects the immunization uptake. Mtendere Township consist of different religious, population size and levels of development. The study indicated that there were significant relationships between the various religions and completing the immunization schedule.

Conclusion and Recommendations

The result of this study has clearly indicated that mothers in Mtendere have improved on taking their children for immunization. This suggests that immunization uptake in Zambia has generally improved compared to previous reports. According to the Zambia Demographic Health Survey (2018), in Zambia, 75% of children age 12-23 months and 72% of children age 24-59 months have received all basic vaccinations. Seventy percent of children age 12-23 months and 63% of those age 24-59 months received all basic vaccines by age 12 months. The survey further adds that forty-six percent of children age 12-23 months and 33% of children age 24-59 months have received all age-appropriate vaccinations. Similarly, 43% of children age 12-23 months and 28% of children age 24-59 months were vaccinated by their appropriate age. However, because MR2 was introduced in June 2017 and fieldwork began in July 2018, it is unsurprising that many children age 24-59 months did not receive the vaccination, thus lowering the overall percentage of children in this age group receiving all age appropriate vaccinations (ZDHS, 2018). The challenge however is that most care givers who were falling in the other religious category, male care givers, and those that had an income of less than K1000 seemed not to still take their children for immunization and this affects the percentage of children fully immunized in Mtendere.

Universal immunization of children against common vaccine-preventable diseases is crucial to reducing infant and child morbidity and mortality. Zambia has conducted routine childhood immunizations since the inception of the Expanded Programme on Immunization in 1975 and has been actively implementing the Universal Childhood Immunization Programme since 1984. In scaling up immunization efforts, the country has developed the Strengthened Expanded Programme on Immunization Vaccination Manual coupled with integrated management of childhood illnesses (IMCI) (MOH 2017). The IMCI strategy ensures that when children come in contact with a health worker, their immunization status is checked and they are given any necessary vaccines. In Zambia, routine childhood vaccines include BCG (tuberculosis), DPT-HepB-Hib or pentavalent (diphtheria, tetanus, pertussis, hepatitis B, and

Haemophilus influenzae type b), oral polio vaccine or OPV (poliomyelitis), PCV (pneumococcal), rotavirus or RV, and measles and rubella or MR.

Historically, an important measure of vaccination coverage has been the proportion of children receiving all “basic” vaccinations. Children are considered to have received all basic vaccinations if they have received the BCG vaccine, three doses each of the DPT and polio vaccines, and a single dose of the measles vaccine. In Zambia, the BCG vaccine is usually given at birth or at first clinic contact, while the DPT vaccine is given in combination with HepB and Hib (DPT-HepB-Hib) at approximately age 6, 10, and 14 weeks. A first measles vaccination (which was given in combination with rubella beginning in June 2017) should be given at or soon after age 9 months.

The 2018 ZDHS results show improvements in basic vaccination coverage. The percentage of children age 12-59 months who received all basic vaccination increased from 68% in both 2007 and 2013-14 to 75% in 2018. The percentage of children age 12-59 months with no vaccinations decreased from 6% in 2007 to 2% in 2013-14 and 1% in 2018. By province, basic vaccination coverage is highest in Copperbelt (83%) and lowest in Luapula (67%). Basic vaccination coverage increases with increasing mother’s education. Sixty-six percent of children born to mothers with no education received all basic vaccinations, as compared with 88% of those born to mothers with a higher education.

In a nutshell, the study sought to examine the determinants of immunization coverage among children aged 12-59 months in Mtendere. Using the Chi-Square test, the study found that care givers religious affiliation, education and literacy, income, age of the mother, sex, place of delivery significantly influenced child immunization. Sex of the care giver had an interesting influence on child immunization; male care givers were found not to have taken their children for immunization. On factors like Marital status and employment status, it was interesting to note that care givers that had taken their children for routine immunization and those that had not was not a result of being married or single and being employed or unemployed.

Concerned authorities should ensure that care givers especially those that could not identify themselves with any religion and the unemployed less income earners immunize their children since low coverage will always draw back the efforts of fighting vaccine preventable diseases. This calls for intervention towards helping these categories of care givers in Mtendere and the nation at large to know the advantage of taking their children to clinics for immunization.

Recommendations

The Ministry of Health through relevant authorities should endeavor to sensitize parents about the importance of completing the immunization schedule, especially with regard to Measles. The Ministry should further come up with education programmes that target poor people so that they are able to make informed decisions regarding immunization of their children. The Ministry should also conduct measles immunization campaign. Such a campaign should include: specific communication focused on measles immunization by 9 months and special measles drive before seasons known for measles outbreak. A reminder system should be devised such as text messages reminding the mothers to come back at the right time to avoid delays in uptake of the measles booster vaccine as it could expose the children to measles infection. Vaccine stock-out should be avoided at all levels in the supply chain so that caretakers are not turned away on appointment days. This is not only an inconvenience to the consumer but also erodes public confidence in the quality of the service provided. The health care providers should always check the child’s immunisation status at every contact and offer appropriate advice regarding the vaccines. Mothers and caretakers need more information about the value of having their children immunized. There is need to strengthen Information Education and Communication at all levels (national, provincial, district, facility and community) in order to help them make informed decisions about their children’s health. Since the community volunteers provide health education to mothers/caretakers, they should be well informed about changes in the immunization programme through regular

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