International Journal of Science and Research (IJSR)
ISSN: 2319-7064
ResearchGate Impact Factor (2018): 0.28 | SJIF (2018): 7.426

Immunization Services Utilization among Children Under Five Years of Age in Bulambuli District, Uganda

Natega Vincent

Senior Environmental Health Officer, Bulambuli District Local Government
Qualification: MEHS, BEHS, PADHM, DEHS, and CEHS

Abstract: ***The study examined the factors associated with utilization of immunization services among children under one years of age in Bulambuli District. The population comprised mothers with children under oneyear of age, midwives and the district health management team members in Bumabuli district. The sample for the study was 147 respondents out of whom 140 returned completed and usable questionnaires. The specific objectives were; (1) to examine the relationship between awareness levels and accessibility of immunization services; (2) to analyze the relationship between accessibility of health facilities and utilization of immunization services; and (3) to assess whether easy accessibility of health facilities significantly contributes to increased utilization of immunization services. Results revealed that; (1) there is a positive and significant relationship between awareness levels and accessibility of immunization services (r = .459**, p<0.0001); (2) there is a positive and significant relationship between ability to access immunization services and utilization (r = .578**, p < 0.0001); and (3) anova results also revealed that the ability of mothers to access immunization services contributed 69.7% to the utilization of immunization services depicted by (F = 69.076, p < 0.0001). It was therefore concluded that for effective utilization of immunization services, there is urgent need for the government to train health workers to reduce missed opportunities, improve communication, and the enhance outreach services so as to remove barriers to immunization.***

Keywords: Immunization, children under five years

1. Introduction

Immunization of children at their infant age is one of the major interventions in helping to reduce child morbidity and mortality with aim of contributing to achieving the fourth millennium development goal of two-thirds reduction in child mortality rate by 2015, achieving global targets of polio eradication, elimination of neonatal tetanus, and accelerated measles control. According to Frenkel and Nielsen (2003), around three million children die each year of Vaccine Preventable Diseases (VPDs) with a disproportionate number of these children residing in developing countries. Despite the universal childhood immunization program, especially in developing countries, like Uganda, poor child health still persists. This has aroused a lot of interest among government policy-makers and other stakeholders especially donors in understanding the factors influencing the use of childhood immunization services. A key issue of interest is whether the children are fully immunized against all vaccine-preventable diseases and the set of associated factors that may need policy intervention.

The Uganda Ministry of Health (2010) observed that in order to enhance child survival with its associated economic benefits, it is paramount to improve accessibility and utilization of immunization services. However, immunization coverage in Uganda varies with different geographical locations and is lower in rural settings (Uganda Bureau of Statistics, 2002). In the rural district of Bulambuli, DPT coverage is 64.3%, which is unacceptably low and far from achieving global targets of polio eradication, elimination of neonatal tetanus, two-thirds reduction in child mortality, delivering universal access to immunization by 2020, and beyond and accelerated measles control (Bulambuli DHO, 2014). The main purpose of this study was to examine the factors associated with utilization of immunization services among children under one years of age in Bulambuli District. The specific objectives were;

1) To examine the relationship between relationship between awareness levels and accessibility of immunization services
2) To analyze the relationship between accessibility of health facilities and utilization of immunization services; and
3) To assess whether easy accessibility of health facilities significantly contributes to increased utilization of immunization services;

Consequently, the tested null hypotheses were;

1) There is no significant and positive relationship between awareness levels and accessibility of immunization services; and
2) There is no significant and positive relationship between accessibility and utilization of immunization services.

This study is significant because according to Nichal and Bhattacharya (2013), immunization forms the major focus of child survival programme throughout the world. That is why the study by Oryema, et al (2017) observed thatvarious approaches have been used to improve and sustain utilization of routine childhood immunization services such as outreach immunization services. In fact, the World Health Organization (2005) noted that immunization is a lifesaving and cost-effective medical intervention which reduces childhood morbidity and mortality from diseases. Meanwhile, AMREF (2001) assert that low immunization coverage exposes large proportion of children to infectious diseases. Similarly, Alfred, et al (2014) noted that disease outbreaks mainly come from pockets of low immunization coverage in areas such as remote places and urban slums. In this way, Victoria et al., (2003) suggested that the best way of increasing immunization coverage is mass campaigns

such as integrating routine immunization with Maternaland Child Health (MCH) clinics.

2. Literature Review

Immunization services have remained inaccessible to children and equity gaps have been demonstrated between developed and developing countries.This is depicted by the significantly high mortality rates for under-one in African countries with rates above 180 deaths per 1000 live births compared to global average of 72 (UNICEF, 2005). It was further added by UNICEF (2005) that there are 30 million children who are not routinely immunized in the world every year and 1.5 million children under one years of age die each year from vaccine preventable diseases like measles, whooping cough (pertusis), Hemophilus influenza type B (HIB) and tetanus. According to Chidiebere (2014), full immunization coverage can prevent 1 in 7 child deaths globally but Africa and Asia still lag behind with the lowest immunization rates.

Various factors have been established to be significantly linked with immunization uptake. The study by Dixit (2012) noted that maternal education and exposure to the media significantly affect the utilization of immunization services. Research has also revealed that children in urban areas are more likely to be fully vaccinated than children in rural areas (Wiysonge, et al., 2012). Put another way, accessibility to health facilities in rural areas is poor as compared to urban areas. Rup, et al, (2008) revealed that immunization issignificantly higherwhere distance to a health facility is small. Accordingly, Kiros and White (2004) contends that rural areas are disadvantaged due to poor road networks, especially during rainy seasons which calls for the improvement of transport facilities which may also help solve the problem. About 40 percent of the population lives more than 14 kilometers from a health facility in Uganda. In the rural areas, a greater proportion of the population lives more than 14 kilometers from a health facility, (WHO, 2005).

It is paramount to note that awareness levels are a significant factor in the utilization of immunization services in the rural areas of Uganda. In this direction, experts such as Pandey and Lee (2011) observed that mothers who attain relatively higher education are better informed andmore empowered hence aremore likely than their counterparts with primary or no education to have their children immunized. On the same note, Mukungwa (2015) noted that possession of a radio and a television significantly increases awareness of mothers about the immunization services and is therefore an important determinant of immunization. There is a need for more sensitization among young mothers on the importance of childhood immunization (Munshi & Lee, 2000). Accordingly, Bhuiya el al (1995) noted that educated mothers tend to have fully immunized children than less educated counterparts. This is because having knowledge on the importance of immunization is partly dependent on thelevel of education.

Alfred et al (2014) also concluded that level of education significantly determines the utilization of immunization services by under-fives and thereafter recommended that health education and promotion campaigns should be carried out by both government through local authorities and non-governmental organizations so as to increase community awareness about importance of immunization services. Similarly, Mukungwa (2015) added that community awareness programs should be scaled up by incentivizing community health workers. This is because availing communities with information required to improve awareness is more likely to improve immunization. Also, Kidane&Tekie (2000) noted that higher community awareness is significantly associated with effective community mobilization hence effective immunization coverage.

3. Methodology

The population comprised mothers with children under-one years of age, midwives and the district health management team members in Bumabuli district. The sample for the study was 147 respondents out of whom 140 returned completed and usable questionnaires. The questionnaire was designed on a five point Likert Scale ranging from (5 = Strongly Agree to 1 = Strongly Disagree) for the different items concerning the utilization of immunization services by children under five years of age.

The reliability of the questionnaire was ascertained using Cronbach's Alpha coefficient. The coefficient for this questionnaire was 0.976 which demonstrated that the questionnaire was reliable for use.

Data analysis was based on both descriptive and inferential statistics which was processed using SPSS version 20.

4. Analysis

Utilization of immunization services comprised the dependent variable and it was measured by the extent to which mothers are able to take all the immunization services needed, dose completion, among others. The full details of the responses to these items are summarized in table 1.

Descriptive statistics in table 1 shows that concerning utilization of immunization services, mothers immunize children and accomplish all the immunization sessions (84.2%). On the same note, 76.4% of the respondents agreed that all doses for all the antigens for immunization are completed. In addition, 83.5% of the respondents agreed that the immunization facility is big enough to accommodate all clients and 89.3% of the respondents agreed that health workers in the health facility are enough to deliver the immunization services. However, 72.9% of the respondents disagreed that mothers use costly equipment in the health facility at little or no cost all. Results in table 1 also reveal that majority of the respondents (92.1%) agreed that the health facility in the district has qualified personnel. Also, 65.7% of the respondents agreed that it is expensive to make immunization visits to the health center.

Table 1: Some responses on utilization of immunization services

No.	Response	Responses		
		SA &A	N	D & SD
		%	%	%
1.	Mothers immunize children and accomplish all the immunization sessions	84.2	2.9	12.8
2.	All the doses for all the antigens for immunization are completed	76.4	12.1	11.4
3.	The immunization facility is big enough to accommodate all children	83.5	2.9	13.6
4.	Health workers in the facility are enough to deliver the immunization services	89.3	5.0	5.7
5.	Mothers use costly equipment in the health facility at little or no cost at all	15.0	12.1	72.9
6.	It is very expensive to make immunization visits to the health centre	65.7	7.1	27.2
7.	The health facility in the district has qualified personnel	92.1	2.9	5.0

4.1 Awareness levels on immunization among women whose children are under one year

Analysis of the descriptive statistics in table 2 reveals that majority of the respondents (85.7%) agreed that prior knowledge about immunization has helped mothers to get more information about immunization. Additionally, 82.1% of the respondents agreed that they have ability to interpret information given by the health workers about immunization while 66.4% agreed that lack of knowledge has led to neglect of advice from health workers about immunization. Results also reveal that mothers have the support of their educated husbands in terms of information about immunization (79.3%) and 92.2% of the respondents also agreed that mothers remember to take their children for immunization without being reminded. Table 2 also revealed that mothers are always aware of the side effects of vaccinations (85%), have knowledge of where to get immunization services (87.9%), and are aware of all the types of immunization for a child (84.2%). Finally, an average number (63.6%) agreed that women in the community remind their peers about taking children for immunization while 75.7% of the respondents agreed that friends always discuss the importance of immunization (75.7%).

Table 2: Some responses on awareness levels on immunization

No.	Response	Responses		
		SA &A	N	D & SD
		%	%	%
1.	Prior knowledge about immunization has helped mothers to get more information about immunization	85.7	5.7	8.6
2.	I have the ability to interpret information given by the health workers about immunization	82.1	9.3	8.5
3.	Lack of knowledge has led to neglect of advice from health workers	66.4	15.0	18.6
4.	Mothers have the support of their educated husbands in terms of information about immunization	79.3	11.4	9.3
5.	Mothers remember to take their children for immunization without being reminded	92.2	2.1	5.7
6.	Women in the community remind their peers about taking children for immunization	63.6	19.3	17.2
7.	I am always aware of the side effects of vaccinations	85.0	5.0	10.0
8.	I have knowledge of where to get immunization services	87.9	10.7	1.4
9.	I am aware of all the types of immunization for a child	84.2	6.4	9.3
10.	Friends always discuss the importance of immunization	75.7	11.4	12.9
11.	I am aware that children who are not fully immunized often fall sick	80.0	16.4	3.6

4.2 Accessibility of immunization services among children under-one years

Descriptive statistics in table 3 reveals that majority of the respondents (82.2%) agreed that the health facility from where mothers get immunization services is accessible. However, 64.3% of the respondents agreed that a lot of time is spent waiting in the health facility for immunization. Table 3 also reveals that 70.8% of the respondents agreed that there is a means of transport to the health facility. Finally, 56.4% of the respondents agreed that the fees charged by the health workers at the health facility are affordable.

Table 3: Some responses on accessibility on immunization services

No.	Response	Responses		
		SA &A	N	D & SD
		%	%	%
1.	Accessibility of health facility	82.2	1.4	16.4
2.	A lot of time is spent waiting in the health facility for immunization	64.3	2.1	33.5
3.	There is a means of transport to the health facility	70.8	4.3	25.0
4.	Available transport means to the health facility are expensive	60.8	4.3	35.0
5.	Fees charged by the health workers at the health facility are affordable	56.4	16.4	27.2

4.3 Testing the relationship between awareness levels and accessibility of immunization services

In order to test the hypothesis that there is a significant relationship awareness levels and accessibility of immunization services, a correlation matrix was analyzed to test the relationship. As indicated in table 4, there is a significant and positive relationship between awareness levels and accessibility of immunization services (r = .459**, p<0.0001). This implies that in order for mothers to effectively access immunization services, they should be sensitized and therefore made aware of such services during antenatal visits, in the mass media, among others.

Table 4.4: Correlation matrix

Correlations				
		Awareness	Accessible	Utilization
Awareness	Pearson Correlation	1	.459**	.659**
	Sig. (2-tailed)		.000	.000
	N	140	140	140
Accessible	Pearson Correlation	.459**	1	.578**
	Sig. (2-tailed)	.000		.000
	N	140	140	140
Utilization	Pearson Correlation	.659**	.578**	1
	Sig. (2-tailed)	.000	.000	
	N	140	140	140
**. Correlation is significant at the 0.01 level (2-tailed).				

4.4 Utilization of immunization services

Descriptive statistics in table 5 shows that majority of the respondents (89.3%) agreed that costly equipment is used in the health facility to offer immunization services. In addition, 76.4% of the respondents agreed that all the doses for all the antigens of immunization are completed. Table 5 also reveals that 84.2% of the respondents agreed that they are able to receive all the immunization services need and 92.1% of the respondents agreed that high quality immunization services are provided at the health facility. However, 72.9% of the respondents disagreed with the statement that there are enough health workers at the health facility to deliver immunization services.

Table 2: Some responses on utilization of immunization services

No.	Response	Responses		
		SA &A	N	D & SD
		%	%	%
1.	All the doses for all the antigens for immunization are completed	76.4	12.1	11.4
2.	Costly equipment is used in the health facility to offer immunization services	89.3	5.0	5.7
3.	Enough health workers are available in the health facility to deliver the immunization services	15.0	12.1	72.9
4.	I am able to receive all the immunization services needed	84.2	2.9	12.8
5.	High quality immunization services are provided at the health facility	92.1	2.9	5.0

4.5 Testing the relationship between accessibility and utilization of immunization services

In order to test the hypothesis that there is a significant and positive relationship between accessibility and utilization of immunization services, a correlation matrix. As indicated in table 4, there is a significant and positive relationship between ability to access immunization services and utilization (r = .578**, p < 0.0001). Anova results in table 7 also revealed that the ability of mothers to access immunization services contributed 69.7% to the utilization of immunization services which is depicted by (F = 69.076, p < 0.0001). The remaining percentage is perhaps the need for government to introduce outreach immunization services so as to bring such services near to the rural communities.

Table 7: Anova results of accessibility on utilization of immunization services

ANOVA[a]						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	11.987	1	11.987	69.076	.000[b]
	Residual	23.948	138	.174		
	Total	35.935	139			
a. Dependent Variable: Utilization						
b. Predictors: (Constant), Accessible						

5. Discussion

This study provides important findings concerning the vitality of ensuring that mothers are aware of the immunization and that they are able to access them so as to effectively utilize them. This would in turn reduce the infant mortality rates prevailing in the rural districts areas of Uganda. It is for example indicated here that awareness levels significantly relates with accessibility of health facility. This implies that the more mothers are sensitized and educated on the importance of immunization through workshops, seminars, and other social media platforms like radio stations, only then will they be able to access and resultantly utilize immunization services. This is in line with several researchers who have warned that strategies that aim to retain immunization service users for the entire immunization schedule need to be developed and implemented. For example Oryema et al, (2017) provides some of the strategies for effective utilization of immunization services as health education which emphasizes the benefits of childhood immunization as well as community mobilization. A systematic review by Favin*et al* (2012) identified reasons for failing to utilize immunization services and categorized these into four groups according to whether factors were related to the immunization system, communication and information, family characteristics, and parental attitudes and knowledge. Similarly, a study by Birhane (2008) noted that low access to services, inadequate awareness of caregivers, missed opportunities, and high dropout rate are major factors contributing to failure of utilization of immunization services.

This study also demonstrates the importance of accessibility which is measured by the extent to which there is a means of transport to the health facility and whether the available transport means to the health facility are expensive or not. According to Rainey *et al* (2011), access to the nearest health facilities is one of the well-known factors associated with immunization status. This was supported by Kitamura, *et al* (2017) who revealed that distance to the health facility or the zone of residence is associated with immunization status where access depends not only on distance but also on road accessibility and on the availability of transportation.

6. Conclusion

In conclusion, momentous progress has been made towards the development of effective national immunization programmes with some of the major contributors to this success being the Expanded Programme on Immunization (EPI) of the World Health Organization (WHO), United Nations International Children's Fund (UNICEF), among others. However, the proportion of children completing the recommended immunization schedule has not increased as anticipated. The reasons for failing to immunize or complete the immunization schedule are multi-factorial and while no single intervention can address all the identified barriers to timely childhood immunization, some difficulties are more easily remedied than others. Reasons related to the immunization system can be addressed by government through established interventions such training of health workers to reduce missed opportunities, strategies to improve communication, and the enhancement of outreach services to remove barriers to immunization. However, other factors such as parental education, cultural mores, and the role of gender and religious beliefs are complex, country or region-specific, and difficult to interpret and therefore bring about the need to sensitize the specific communities on how to address factors related to the failure to immunize or complete immunization schedules.

References

[1] Alfred K., Simiyu T., Paul K.M., Irene M., Robert T., Koskei K.P., and Constance T. (2014). Utilization of Essential Immunization Services among Children under Five Years Old in Kacheliba Division, Pokot County, Kenya. Science Journal of Public Health. Vol. 2, No. 6, 2014, pp. 617-623. doi: 10.11648/j.sjph.20140206.29
[2] AMREF (2001): Community health. Vaughan J.P, C.H. Wood, H. de Vlanville 2nd edition. Regal Press Limited.
[3] Bhuiya, A., Bhuiy, I., and Chowdhury, M. (1995). Factors Affecting Acceptance of Immunization Among Children in Rural Bangladesh. Health Policy and Planning, 10 (3), 304-311.
[4] Birhane, Y. (2008). Universal Childhood Immunization: a realistic yet not achieved goal. Ethiop J Heal Dev, 22(2), 146–147.
[5] Dixit, A.M., Masand, R., and Gupta R.K. (2012). Study of immunization status of rural children (12-23 months age) of district Jaipur, Rajasthan and factors influencing it: a hospital based study. Journal of Indian Medical Association, 110(11), 795-799.
[6] Favin, M., Steinglass, R., Fields, R., Banerjee, K., and Sawhney, M. (2012). Why children are not vaccinated: a review of the grey literature. Int. Health, 4(3), 229–238.
[7] Frenkel, L.D., and Nielsen K. (2003). *Immunization issues* for the *21stcentury*. Indian J Med Sci, 57 (1),158-63.http://www.health.go.ug/docs/HSSP_III_2010.pdf.
[8] Kidane, T., andTekie, M. (2000). Factors Influencing Child Immunization Coverage in a Rural District of Ethiopia. Ethiopian Journal of Health Development, 18 (3).
[9] Kiros G.E., and White, M.J. (2004). Migration, community context, and child immunization in Ethiopia. Soc Sci Med, 59, 2603–16.
[10] Kitamura, T., Mizoue, T., Miyano, S., Hachiya, M., and Xeuatvongsa, A. (2017). Determination of factors affecting the vaccination status of childrenaged12–35 months in Lao People's Democratic Republic. Heliyon, 3, 1-19.
[11] MoH. Health Sector Strategic Plan III 2010–2015. Kampala: Government of Uganda Ministry of Health; 2010.
[12] Mukungwa, T. (2015). Factors Associated with full Immunization Coverage amongst children aged 12–23 months in Zimbabw. African Population Studies, 29 (2), 1761 – 1774.
[13] Munshi, R., and Lee, S.H. (2000). Child Immunization in Madhya Pradesh. National Family Health Survey Subject Reports Number 15. International Institute for Population Sciences.

[14] Nichal, T., and Bhattacharya, M. (2013). Utilization of immunization services in two Districts of Haryana: beneficiaries' Perspectives. Health and Population - Perspectives and Issues, 36 (1), 45-56.
[15] Oryema, P., Babirye, J.N., Baguma, C., Wasswa, P., andGuwatudde, D. (2017). Utilization of outreach immunization services among children in Hoima District, Uganda: a cluster survey. BMC Res Notes (2017) 10:111.
[16] Pandey, S., and Lee, H. (2011). Determinants of child immunization in Nepal: The role of women's empowerment. Health Education Journal, On-line first, doi: 10.1177/0017896911419343.
[17] Rainey, J.J., Watkins, M., Ryman, T.K., Sandhu, P., Bo A., and Banerjee, K. (2011). Reasons related to non-vaccination and under-vaccination of children in low and middle income countries: findings from a systematic review of the published literature, 1999–2009. Vaccine 29, 8215–8221.
[18] Rup, K.P., Manash, P.B., andJagadish, M. (2008). Factors Associated with Immunization Coverage of Children in Assam, India: Over the First Year of Life. Journal of Tropical Paediatrics, 52(4), 249-252.
[19] UBOS. Uganda Demographic and Health Survey 2011. Kampala: Uganda Bureau of Statistics; 2011. http://www.ubos.org/onlinefiles/uploads/ubos/UDHS/UDHS2011.pdf
[20] Uganda Bureau of Statistics. The 2002 Uganda population and housing census, population size and distribution, October 2006. Kampala, Uganda; 2002. http://www.ubos.org/2002-census/.
[21] Victoria C.G., Vaughnan J., Barros F., Silva A., and Tomasi E. (2003). Explaining trends in inequalities, evidence from Brazilian child health studies.
[22] WHO/UNICEF, (2005).Global Immunization Vision and Strategy (GIVS) 2006-2016; Geneva: http://whqlibdoc.who.int/hq/2005/WHO_IVB_05.05.pdf
[23] Wiysonge, C.S., Uthman, O.A., Ndumbe, P.M., and Hussey, G.D. (2012). Individual and Contextual Factors Associated with Low Childhood Immunization Coverage in Sub-Saharan Africa: A Multilevel Analysis. PLoS ONE, 7(5), e37905. doi:10.1371World Health Organization.