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Factors Affecting Compliance of Childhood Routine Immunization and Dropout Rate in KABUYANDA Town Council – ISINGIRO District

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Abstract:-Routine immunisation remains the cost effective approach in preventing childhood illnesses. However immunisation compliance and dropout rate remains a challenge worldwide. Compliance refers to a child getting vaccinated according to schedule recommended by government, and dropout rate the difference between the Initial and last vaccine administered (USAID 2003). (BCG -Measles). This Study looked at complianceof childhood routine immunisation and dropout rate in Kabuyanda Town Council which remained high at 47% in 2014 (Kabuyanda HCIV Records Office 2014) instead of national target of <18%, for BCG and Measles ≤ 10% for DPTHep+Hib1- DPTHep+Hib3, (UBOS 2013) A cross sectional study was done, 384 respondents of children 1 to 24months were interviewed using structured questionnaires administered by simple systematic sampling at household. Bivariate analysis on outcome 1 Compliant, 2 Not Compliant was done, tested using odds ratio and Pearson's Chi-Square (x^2). Factors significant at P value ≤0.05 with plausible association were again analyzed at Multivariate level to obtain adjusted Odds Ratio for factors affecting compliance to routine immunisation and dropout rate, " time taken to get services" OR=1.99 (95%CI=1.02-3.89), "distance to immunization centre" OR=2.28 (95%CI=1.02-2.36) came out as factors responsible. Mother'snegligence and engagement duties, Sick children at the time of immunisation and forgetting a returndate werecredible causes that hindered compliance and increased dropout rate, mothers who waited 1hr were50% more likely to be compliant than mothers waiting for 3hrs+. Mothers residing in a distance 0.5 Km were 2.6 times likely to be complaint compared to mothers residing far from a facility. Therefore there is need to improve on time spent with mothers, create more outreaches to reduce on distance to immunisation services and intensify health education to communities, carry out more studies to strengthen these findings.

Keywords:-Compliance, Dropout Rate, BCG, DPTHep+Hib&Measles Vaccine, Full Immunisation

I. INTRODUCTION

Routine immunisation remains the cost effective approach of preventing childhood illnesses. However compliance to routine immunisation and dropout rate remains a challenge problem Worldwide. A child fully immunised, mothers/caretakers need to be compliant and follow a scheduled return date for immunisation. Therefore Compliance to routine immunisation is when a child is vaccinated according to the government recommended Schedule, an infant should receive doses of antigens of BCG at birth or first contact and OPV0 at birth or within 14 days after delivery, OPV1and DPTHEP+Hib1 at 6weeks, OPV2 and DPTHEP+Hib2 at 10 weeks, OPV3 and DPTHEP+Hib3 at 14 weeks and Measles at 9monthsand Uganda National Expanded Program on Immunisation (UNEPI) goal is to have all children immunised before their first birth day, while dropout rate is the difference between the initial vaccine administered (BCG or DPTHEP+Hib1) and the last vaccine administered (DPTHEP+Hib3 or Measles), however in Uganda dropout rate of less than 10% for DPTHEP+Hib1-DPTHEP+Hib3 and 18% for BCG/Measles is acceptable.(USAID 2003).

Globally over 240,000 children are dying of vaccine preventable diseases, (Tuberculosis, Polio, Measles, Diphtheria, Whooping Cough, Tetanus, Hepatitis B and Haemophilius Influenza type B) with a high dropout rate of DPTHEP+HIb3 antigen, indicating poor continuity of routine immunisation in rural Health Centres (Bbaale E. 2013).

While in Sub Saharan Africa, 4.4 million children died from child hood vaccine-preventable diseases in 2008 (Bbaale E. 2013) while 57.8% of children aged 12-23Months in Osun State of Nigeria, were fully Immunised far below the World Health Organisation and National target of 80% and dropout rate of BCG to Measles and DPTHEP+HIb1/ DPTHEP+HIb3 were higher than Expected≤18%, ≤10% respectively (Elizabeth .B et al 2013).

In Uganda 652,711 Children between 2007-2009 were not Immunised against DPTHEP+HIb3 and Measles respectively

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(WHO 2013) with 223218 Unimmunised Children against DPTHEP+HIb3, resulting into re-occurrence of vaccine-preventable diseases like Measles due to non –compliance of mothers and care takers (WHO 2012).

Kabuyanda Town Council inIsingiro District has the best immunisation Services in the Health Sub District but with poor compliance of childhood routine immunisation and high Dropout rate of BCG to Measles compared to National Target of <18% ,$\frac{Totalnumberof BCGantigen - Totalnumberof measlesantigen}{Totalnumberof BCGantigen} x100$ = $\frac{949-493}{949}$x100 = 47% (Monthly HMIS 105 Reports Kabuyanda HCIV 2014).

Kabuyanda Town Councilisorganized in parishes and villages;ithas a population of 6193 and Annual growth of 3% with2940 childrenless than one year (Isingiro District Planning office 2013). It hasa min hospital (Kabuyanda Health Centre IV). There are Village health teams (VHTs) to mobilise communities forservices including Maternal and Child Health usingtelephones with tollfree calls, village health teams report weekly to Health Centre in Charges and heads of UNEPI at the Min Hospital all childhood related diseases.Despite the infrastructure and government commitmentto prevent Infant childhood diseases through routine immunization (WHO 2012),few children aged between 1 to 24 months are brought for immunization services at Health Centres and Outreaches, resulting into overwhelming number of children not fully immunized, therefore compliance and dropout rate remains a health problem in Kabuyanda Town Council, that impinge on social economic status with huge losses on families with sick childrenduring treatment, the study looked at reasons for non-compliance and dropout rate of mothers /caretakers from routine immunisation in Kabuyanda Town Council.

II. MATERIALS AND METHODS

We got approval from Makerere University School of Public Health and Ethics Committee and Uganda National Council of Science and Technology (NCST) to explore factors associated with non compliance to routine immunisation and dropout ratein Kabuyanda Town Council through interviewing Mothers/ Caretakers with Children between 1Months to 24Months at house hold,from four wards of Town council (Northern and Central Kabuyanda, Kisyoro andIryango).

It was a cross sectional study, semi structured questionnaires were administered to 384 respondents for interviewthrough simple systematic sampling. Sample Size was determined by $n = Z^2PQ/\delta^2$(Kish Leslie 1965),the outcome of interest was a categorical variable reported as a proportion), n= Sample Size, Z= the Standard Normal Deviate at 95% Confidence (1.96) P=Estimated Prevalence of the Problem under Study, Q=100%-P or (1-P).

Our dependent variables were constructed on the outcome Variable 1 Complaint "if the respondent started the immunisation, followed the Immunisation schedule and completed in 9months, 2 Not Compliant to routine immunisation services (Mothers/ Care takers who started the Immunisation and did not follow the recommended immunisation schedule and dropped out). We controlled a number of independent variables, guided by previous literature by coding. They included distance, waiting time, missed opportunities, accessibility, and availability of vaccines, rumours, misconceptions, and mother's sickness, forgetting return date, social engagement, Sick Child and complication of previous injections availability of means of transport, few trained immunisers, and lack of bottom- top planning while confounding variables like age, education, marital status, religion, occupation, poverty, were also considered.

Tools were validated for completeness and categorized, coded datawas exported from Epidata as an excel sheet to StataSE12 (64-bit) foranalysis Univariate analysis (one way cross tabulation) was done for frequency distribution. Bivariate analysison outcome variable 1 Complaint,2 Not Compliant to routine immunisation was done, and cross tabulated against each independent variable, the association was tested using odds ratio and Pearson's Chi-Square (x^2) because all variables were categorical. Factors Significant at P value ≤0.05 with plausible association tocompliance or not were again analyzed at Multivariate level to obtain adjusted Odds Ratio (OR) which determined the associated factors affecting compliance of childhood routine immunisation and dropout rate in Kabuyanda Town Council -IsingiroDistrict". The study population based random sample generalised the findings to many others in the country,self reports on immunisation compliance and dropout rate bycomparing Child Health Cards with mothers/caretakers information reduced recall bias,which was a key strength to the study.

III. RESULTS

A. Social Demographic Factor

Majority (45.8%) were aged between 26-35 years, completed Primary education (64.3%) therefore illiterate, this could be apparent cause for not complying with immunisation policies. (53.9%) were peasants who earned a leaving through farming. Also mother's engagement (16.1%) and Negligence (15.6%) were also sighted as probable causes, because majority excused themselves for having a sick children at home (6.3%) at the very date of immunisation and others forget a return date (4.9%) for Immunization Services.

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Variable	Crude OR	Adjusted OR at 95%CI	P-Value
Time taken to get services			
1 hr vs 3hrs+	0.50	1.99(1.02-3.89)	**0.04***
2-3hrs vs 3hrs+	0.8	1.29(0.70-2.36)	**0.41**
Distance to immunization centre			
1km vs 0.5 km	2.41	2.28(1.02-5.07)	**0.04***
2km+ vs 0.5 km	2.65	0.93(0.59-1.49)	**0.77**
Period stayed in the area			
1-5 years vs 6months	0.87	1.06(0.46-2.44)	**0.89**
6 years + vs 6 months	0.62	1.51(0.96-2.35)	**0.07**

Variable	Category	Immunisation status N(%)Compliant(n=176)	Not compliant(n=208)	Un adjusted OR (95%CI)	p- Value
Period stayed in the area	6months	13	17	1.0	
	1-6 months				
	6+years	96	90	0.87 (0.40-1.90)	0.72
		67	101	0.62 (0.41-0.95)	0.03*
Distance to the facility	0.5Km	22	11	1.0	
	1Km	58	70	2.41(1.08-5.39)	0.03*
	2Km	96	127	2.65(1.22-5.72)	0.01*
Time taken to get services	3hrs +	24	39	1.0	
	2-3hrs	93	121	0.8(0.45-1.42)	0.45
	1hr	59	48	0.50(0.26-0.94)	0.03*

Table 1: Showing Bivariate and Multivariate Analysis

Factors affecting Compliance were Time taken to get Services OR=1.99 (95%CI=1.02-3.89) P value=0.04 and distance to Immunization Centre OR=2.28 (95%CI=1.02-2.36) P value=0.04, Mothers with a least waiting time (1hr) was 50% likely to be Compliant compared to those with the longest waiting time (3hr +). While Mothers residing at the shortest distance 0.5 km were 2.6 times more likely to be complaint compared to those residing more than a Kilometre away from the Health facility.

IV. DISCUSSIONS

Mother's compliance to childhood routine immunisationin Kabuyanda Town Council – Isingiro Districtis low,because majority of mothers are not compliant (54.2%) compared to (45.8%) Complaint, the studyattributed it, to illiteracy as majority had completed primary level,Mother's engagement (16.1%) and Negligence (15.6%), or having a sick child (6.3%) at the time of Immunisation and forgetting a return date (4.9%) for Immunization Services, dropout rate is also high(47%) compared to the acceptable national average of 10% and 18% for DPTHEP+Hib1- DPTHEP+Hib3 and BCG/Measles respectively,such observation has been made by otherscholars in Africa(Abdulraheem I.S et, al (2011). This increases incidences of Tuberculosis, Poliomyelitis, Measles, Diphtheria, Whooping Cough, Tetanus, Hepatitis B and Haemophilius Influenza type B) (Ayebo .E et al (2009). Therefore there is aneed to create awarenessamong the population on the benefits of compliance to routine immunisation so as to reverse the trend and reduce diseases of epidemic potential.

The study indentified other potential factors, for failing to complete immunisation in time and subsequently drop out as "Time taken" to get services,it was observed that mothers/caretakers with a least waiting time 1hour were likely to be Compliant, compared to Mothers who waited for 3hours+, this indicated that mothers/caretakers who take long, to get services are demoralised for the next Immunisation return date.

Distance to Immunization Centre also influenced compliance, because, mothers residing at a shortest distance 0.5 km were 2.6 times more likely to be complaint compared to mothers residing more than a Kilometre away from the Health facility or Immunisation Outreach, therefore there is need to create more outreaches to extend services to near communities.

Return date for immunisation servicesgreatly influenced and increased dropout rate in Kabuyanda Town Council, because

mothers forget the date they are supposed to return back for Immunisation Services which was attributed to low education levels (64.3%) and failure to read and utilise the information on the child immunisation card.

V. CONCLUSIONS

The study indentified factors significant for non compliance and madeconclusions to reduce Dropout rate in Kabuyanda Town Council .Mother's compliance to childhood routine immunisationin Kabuyanda Town Council – Isingiro Districtis low, mothers are not compliant (54.2%) to compared to the (45.8%) anddropout rate is high (47%) compared to the acceptable national average of 10% and 18% for DPTHEP+Hib1- DPTHEP+Hib3 and BCG/Measles respectively (HMIS 105 Reports Kabuyanda HCIV 2014& 2015).

Distance travelled by clients to access Immunisation serviceinfluenced compliance and dropout rate, especially those in I Kilometre and beyond, which would be solved by setting up many immunisation outreaches to shorten the distances formothers/ caretakers to get Immunisation services.

Time taken to get services greatly influenced the subsequent immunisation sessions because clients who got services in less than hour were most likely to return for the next immunisation vaccine, thus reducing dropout rate at Health centre as well as Immunisation outreach,.

Return date for immunisation services affected and increased dropout rate in Kabuyanda Town Council, because mothers forget the date they are supposed to return for Immunisation services However theresearcher is optimistic that compliance to childhood immunisation in Kabuyanda Town Council and the country as whole will improve, when the following is addressed:-

The District, Kabuyanda Town Council and Health Centre IV Managers strengthen health education programs with focus on the benefits of compliance to routine child hood immunization' promote good communication between clients and reduce time spent, to get immunization Services. Health Sub District managers create more out reaches to shorten distance travelled by clients to access Immunization service.Finally the researcher calls for larger studies to further strengthen these findings

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