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Factors Affecting The Utilization Of Routine Immunization Coverage Of Children Under Two Years In Somalia: A Case Of Garowe Town

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Abstract

The purpose of this study was to interrogate the determinants of the utilization of routine immunization coverage for children under 2 years in Garowe town. The specific objectives of the study was to determine caregiver, interpersonal, health facility factors and policy factors affecting the utilization of routine immunization to children under Two years in Garowe town. A cross-sectional survey design was the most suitable for the study. The study also used both qualitative and quantitative data collected by interviewing mothers, guardians of the children under two years, service providers in selected health facilities, and community health workers. The selection of the sample was through probabilistic as well as non-probabilistic methods. Before that, the sample size of 384 was determined by use of Fisher formula The data collection instruments were Semi-structured questionnaires, KII and FGDs. For data interpretation, quantitative data was analyzed through univariate methods, descriptive statistics, Chi-square ($\chi 2$) and regression methods. In addition, qualitative data were organized and summarized in line with the thematic areas; described, followed by thematic analysis.The findings confirmed that care giver factors such as demographic characteristics, knowledge of caregivers reduced utilization of routine immunization in Somalia. The results further showed that interpersonal factors and health facility factors had a positive and significant effect on utilization of routine immunization in Somalia. The study findings implied that lack of adequate policies in Somalia reduced effective utilization of routine immunization. The study concluded that utilization of the routine immunization in Garowe Town had improved since majority of the caregivers had taken their children for polio vaccines, BCG injection among others. The study concluded that a significant number of caregivers still leave their children unprotected by failing to observe the routine immunization despite being close to health facilities.

Keywords: *utilization, routine, immunization, Garowe Town, Somalia*

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1.0 INTRODUCTION

1.1 Background of the study

In the developing countries, WHO reports cites insufficient health systems. This is a great barrier to achievement of essential healthcare. In as much as it is a problem of the developing economies, some developed countries also suffer the fate especially because of inequitable social protection as well as high costs of the services. For this reason, the World Health Organization developed a common framework of action consisting of six essential building blocks to strengthening health systems. This study is anchored on service delivery.Characteristics of a good healthcare service range from quality, effective, affordable and safe (World Health Organization, 2007). Despite the fact that no universally accepted health service delivery mechanisms exist, there is a need to meet various prerequisites such as delivery through well trained personnel, sustainable financing models and in a friendly environment that supports both the providers and users.

This block is concerned with proper organization of resources with an aim of delivering quality, accessible, safe and continuous healthcare services regardless of scope, ailment nor time period. Somalia is located in the Horn of East Africa with functional federal government and Five Member states. Puntland is one of the federal member states which is relatively stable and peaceful federal state located in the northeastern region of Somalia, with state capital city of Garowe in the Nugaal region. Puntland has nine regions; Nugaal, Bari, Karkaar, Mudug, Sool, East Sanag, Hayland, Gardaful and Ayn, 51 districts with total population of 3 million people.

Strengthening the immunization system in Puntland State remains a priority of the Ministry of Health and Partners including the United Nations agencies such as UNICEF and WHO. Strengthening the Immunization will contribute to strengthening the overall health system. The eradication of poliomyelitis and control of other vaccine preventable diseases remain major goals of Ministry and the foundation of these efforts is a strengthened routine immunization system. The Ministry of Health with support from Partners has developed various strategic documents setting out strategies to improve immunization. However, despite the commitments routine immunization coverage remains low and disease outbreaks are common. These disease outbreaks are usually brought under control through mass vaccination campaigns such Polio NID and measles under 5 years supplementary immunization activities

In Puntland, like most of Somalia, there have not been many surveys to evaluate immunization coverage. There was demogratic and health survey that was done at the end of 2019, the survey report not yet published publicly. However, a recent routine immunization data from Ministry of Health, Puntland indicates that 2019 annual fully imunised coverage was the highest ever recorded, lanmark 93.6 percent. Mean while the proportion of children aged 12-23 months who received the third dose of the pentavalent vaccine and whose who received all the childhood vaccines were suprisngly 93.0. According to the officals at the ministry of health, the 2019 HMIS data interms of doses given to the children aged 0-23 months the exact number was 109,340. These numbers does contripute hugely to the over all EPI coverage in the Somalia, but doesn,t neccesorily reflect status of the country.

The study purposed to establish factors affecting the utilization of routine immunization coverage of children under two in Garowe Town of Somalia. The study was expected to

contribute towards strengthening the delivery and utilization of routine immunization coverage, inform policy formulation and implementation in the Puntland state.

3.0 RESEARCH METHODOLOGY

The study adopted the cross-sectional study design with mixed data collection methods. The quantitative approach elicited information was used for descriptive and inferential purposes, the qualitative approach was expected to obtain in-depth information used in validating descriptive and inferential statistics. A mixture of probability and non-probability sampling procedures were applied to select participants in each category. The Fisher's formula for sample size determination from large populations was used to select a representative sample of 384 respondents. The study administered a total of 384 questionnaires to the selected caregivers with children less than two years of age.

4.0 RESEARCH FINDINGS

4.1 Demographic Characteristics of Utilization of Routine Immunization.

Table 1 presents the respondents' demographic characteristics and corresponding χ^2 results on utilization of routine immunization.

Table 1: Demographic Characteristics (n = 384)

Characteristics	Category	Frequency	Percent	Chi-Square Test
Gender	Male	73	19	χ^2= 0.312
	Female	311	81	(P = 0.577)
Age	<18yrs	59	15.4	χ^2= 2.571
	19-45yrs	264	68.8	(P = 0.276)
	>46	61	15.9	
Marital Status	Married	259	67.4	χ^2= 14.581
	Single/Unmarried	45	11.7	(P = 0.002)
	Divorced	49	12.8	
	Widowed	31	8.1	
Caregivers primary Occupation	Livestock Keeping	44	11.5	
	Salaried Employee	152	39.6	
	Formal business owner	78	20.3	
	Informal business owner	25	6.5	χ^2= 8.998
	Farming	8	2.1	(P = 0.174)
	Mixed farming/house wife	43	11.2	
	Other(Specify)	34	8.9	

The demographic characteristics analysed include age bracket of the respondent, gender, marital status and their occupation. It was indicated that gender (χ^2= 0.312 ; P = 0.577), age (χ^2= 2.571 ; P = 0.276) and caregivers primary occupation (χ^2= 8.998 ; P = 0.174) are not significantly associated with utilization of routine immunization. However, marital status (χ^2= 14.581 ; P = 0.002) was significantly associated with utilization of routine immunization.

4.2 Utilization of Routine Immunization in Garowe Town

In this section, The study investigated the extent of utilization of routine immunization among the people living in Garowe Town in Somali. The study sought to establish whether the caregivers utilized routine immunization to prevent the children from dying due to dangerous diseases such as Polio, measles among others. Somalia has relatively low coverage according to global coverage despite the fact that vaccines are widely available with support from the global communities including Global Alliance for Vaccines International. In this section interrogation whether the children had obtained vaccination in the routine of health service. The results are presented in Table 2

Table 2: Whether Children/Child received Immunization

Has your child/children ever received any vaccination through routine health services in his/her life?	Frequency	Percent
Yes	322	83.9
No	62	16.2
Total	**384**	**100**

The results presented in Table 2 show that 322 (83.9%) of the respondent agreed while 62 (16.2%) disagreed on whether their child/children ever received any vaccination through routine health services in his/her life. According to this findings majority of the residents in Garowe Town in Somali had at least their children vaccinated during the routine health services.

4.3 Care Giver Factors and Utilization of Routine Immunization

The study was to determine the effect of care giver factors on utilization of routine immunization for children less than two years in Garowe region of Somalia. The care giver factors were divided into knowledge and perception and demographic factors. Maternal characteristics, sex of child and birth order of the child, place of delivery and antenatal care (ANC) follow up, household income, economic status, knowledge, attitude and practice of caregivers about immunization are the main factors associated with immunization coverage and immunization services utilization among children.

4.3.1 Knowledge on Utilization of Routine Immunization

Table 3 shows the relationship between knowledge of the caregivers and routine utilization of the immunization.

Table 3: Reasons for not Vaccinating the Child

	Frequency	**Percent**
Knowledge	90	23.5
Traditional/Cultural Beliefs	25	6.5
Institutional Factors	17	4.4
Family Support to caregivers	40	10.4
Total	**172**	**100**

The results presented in Table 3 shows 212 children had completed the routine immunization. Lacks of knowledge was indicated by 90(23.5%) of the caregivers as the main reasons why they did not vaccinate their children followed by lack of family support indicated by 40(10.4%) of the caregivers, poor institutional factors was indicated by 17(4.4%) while 25(6.5%) indicated traditional and cultural beliefs as the reasons why they failed to vaccinated their children.

The study further interviewed the community health workers on some of the challenges the routine immunization faced. Respondent KII 002 interviewed indicated that:

> *"… lack of adequate trained staff, lack of supportive supervision and feedback, limited training on immunization, supply chain management, low mother knowledge on immunization schedule, Poor health workers attitude towards caregivers as some of the main challenges of utilization of routine immunization in Somalia …"*
>
> *(Respondent, KII 002)*

The results of chi-square revealed that reasons for not vaccinating the child significantly influenced as shown by χ^2= 375.979 (p=0.001) utilization of routine immunization by resident of Garowe region of Somalia.

4.3.2 Demographic Factors on Utilization of Routine Immunization

The study further sought to establish the relationship between demographic factors and utilization of routine immunization by residents of Garowe, region in Somalia. The results showed that majority of the respondents were between 18 and 45 years. The study did not find any significant relationship between age of the caregiver and utilization of routine immunization χ^2= 2.571 (p=0.276). Respondent KII 003 interviewed further noted that:

> *"… Some of the caregivers that that very young don't understand the importance of routine immunization which makes them not to utilize or take their children for vaccination …"*
>
> *(Respondent KII 003)*

The results on gender showed that majority of the caregivers interviewed were female (308). Chi-square results χ^2= 0.312 (p=0.577) revealed that gender of the respondents had insignificant relationship with utilization of routine immunization by caregivers in Garowe region of Somalia. The study further asked the community health workers and nurses on the effect of gender on routine immunization and they reported that majority of the caregivers that utilized routine immunizations were female. A key informant (KII) had the following to say:

> *"… In our culture, it is the responsibility of the women to take care of the young ones and therefore it was also their responsibility to ensure that their children are fully immunized and vaccinated. Majority of the men just offer little support in terms of providing the means to the health facilities … "*
>
> *(Respondent KII 003)*

The results revealed that majority of caregivers were married and that marital status had significant relationship with utilization of routine immunization as indicated by chi-square χ^2= 14.581 (p=0.002). Further analysis found that there was a significant relationship between caregiver relationship with the child and utilization of the routine immunization χ^2= 10.751 (p=0.030).

Study results indicated that father's education was significantly related to utilization of routine immunization χ^2= 16.955 (p=0.002). The findings implied that children with more educated fathers underwent routine immunization compared to children with less educated fathers. The results showed that father level of education was a significant factor that influence children routine immunization in Garowe region of Somalia. On the relationship between level of education of father and mothers and routine immunization a KII interviewed said:

> "… m*others and fathers that gone to school understand the importance of routine immunization is more likely to ensure that all their children are properly vaccinated unlike parents who do not have any formal education*"
>
> (KII, 006)

The results presented in Table 4 depict the influence of care givers on utilization of routine immunization

Table 4: Influence of Care givers on Utilization of Routine Immunization

	Yes (n)	No (n)	Total (n)	Chi-Square Tests
Mother's Education Level				
Islamic	67	54	121	χ^2= 16.415 (p=0.006)
Primary	37	40	77	
Secondary	41	38	79	
College	22	9	31	
University	44	31	75	
Total	**211**	**172**	**383**	
Mother or Child Reading Skills				
Very easily	144	104	248	χ^2= 14.209 (p=0.003)
With some difficulty	50	55	105	
Not at all	18	13	31	
Total	**212**	**172**	**384**	
Caregivers primary occupation				
Livestock Keeping	22	22	44	χ^2= 8.998 (p=0.174)
Salaried Employee	86	66	152	
Formal business owner	40	38	78	
Informal business owner	14	11	25	
Farming	6	2	8	
Mixed farming/house wife	28	15	43	
Other(Specify)	16	18	34	
Total	**212**	**172**	**384**	

Similarly, results in Table 4 indicated that mother's education was significantly related to utilization of routine immunization χ^2= 16.415, (p=0.006). The findings implied that children with more educated mothers underwent routine immunization compared to children with less educated mothers. Results showed that mother or child reading skills had a significant relationship with utilization of routine immunization among the caregivers in Garowe. The findings implied that mothers that could read utilized routine immunization for their children compared to those that could not read χ^2= 14.209, (p=0.003). Findings established that there

is insignificant relationship between $\chi 2= 8.998$, ($p=0.174$) caregiver primary occupation and utilization of routine immunization.

4.4 Effect of Interpersonal Factors on Utilization of Routine Immunization

Among the interpersonal factors studied were family support, decision making in family, father contribution and traditional/religion influence.

4.4.1 Family Support and Encouragement

The results of family support and encouragement on utilization of routine immunization is presented in Table 5

Table 5: Family Support and Encouragement on Utilization of Routine Immunization

	Yes (n)	No (n)	Total (n)	Chi-Square	P-Value
Family members' encouragement or support caretakers to take their children for immunization?					
Yes, very supportive	144	81	225	52.722	0.001
Somewhat supportive	53	49	102		
No, they are against immunization	12	36	48		
Not sure	3	6	9		
Total	212	172	384		
Family final decision makers on vaccination					
You do	35	21	56	14.710	0.012
Spouse does	22	34	56		
Mother	102	73	175		
Mother-in-law	15	13	28		
Someone else	32	21	53		
Don't know	5	10	15		
Total	212	172	384		
Fathers Contribution make towards successful routine immunization					
Provide permission to vaccine the child	91	83	174	8.819	0.012
Provide transportation and other support that mother needs	109	62	171		
Other, specify	12	27	39		
Total	**212**	**172**	**384**		
Traditional / religious leaders support for routine immunization					
				15.495	p=0.00
Yes, very supportive	125	76	201		1
Somewhat supportive	51	48	99		
No, they are against immunization	10	18	28		
Not sure	26	30	56		
Total	**212**	**172**	**384**		

The results in this section show that family support and encouragement was significantly related to utilization of routing immunization χ^2=52.722, (p=0.000). The findings established that caregivers with very supportive families utilized routine immunization for their children compared to those that lack family support. Results shows that final decision makers in the family significantly influenced the children routine immunization in Garowe (χ^2= 14.710, p=0.012).

The study finding established a significant relationship between relationship between traditional / religious leaders support and utilization of routine immunization (χ^2= 15.495, p=0.001). The findings implied that traditional/religious leaders support increased utilization of routine immunization. One KII respondent had the following to say:

> *" ... Some traditional practices have played a role in reducing the level of routine immunization among the residents of Garowe. These practices should be abolished to increase the rate of utilization of the routine immunization in Somalia ..."*
>
> (KII 006)

5.0 DISCUSSION

The findings confirmed that care giver factors such as demographic characteristics and knowledge of caregivers reduced utilization of routine immunization in Somalia. The results further showed that interpersonal factors and health facility factors had a positive and significant effect on utilization of routine immunization in Somalia. The study findings implied that lack of adequate policies in Somalia reduced effective utilization of routine immunization. The finding of this study were consistent with those by Anonh *et al* (2017) who studied determination of factors affecting the vaccination status of children aged 12-35 months in Lao Peoples Democratic Republic found that the proportion of infants who were fully immunized was still lower than the national target and maternal ethnicity, paternal education, and notification of the vaccination date by medical staff were associated with full vaccination status. The study findings agreed with Mohamud, Feleke, Worku, Kifle and Sharma (2014) whose study findings showed that overall immunization of the children less than 5 years was very low. The study recommended that promotion of health institutions should be undertaken, strengthening of outreach activities of the health institutions should be undertaken to encourage mothers to utilize health services. Ali, Banda, Mohammed, Adagadzu, Murele, Seruyange and Folorunsho, (2016) study also reported that although Polio has been successfully combated in the past 3 years in Somalia, diseases like Measles are still prevalent in many parts of the country.

A study by Falcao *et al,* (2010) also revealed that prevalence rate of vaccination significantly varied according to child age, mother's level of education, family size, ownership of household appliances, and destination of domestic waste. Those that were single and unmarried were not the mother of the children but they were caregivers who were presents at the time research. The findings show that utilization of routine immunization was related to marital status of the caregivers. Obinna and Oleribe (2016) study also discovered that paternal age, occupation, and educational status directly affected immunization coverage. The study finding show that caregiver relationship with the child influenced child routine immunization. The results show that mother's level of education was a significant factor that influences children routine immunization in Garowe region of Somalia. The findings supports those of Kidane, et al (2006) study revealed that mothers with lowest education,

households with limited monthly income and people living in slum area were less likely to complete a child immunization. It also indicated that children whose mothers were born in a rural area or an urban slum, and those whose mothers were aged less than 30 years are 0.35 and 0.43 times less likely to be fully immunized respectively.

6.0 CONCLUSION

The study concluded that utilization of the routine immunization in Garowe Town was high because majority of the caregivers had their children taken for polio vaccines, BCG injection among others vaccines. However, the study concluded that a significant number of caregivers still leave their children unprotected by failing to observe the routine immunization despite being close to health facilities.

The study concluded that the level of education of mother and fathers, father contribution, knowledge and perception, immunization belief, main source of information and availability of the vaccinations are some of the factors that contributed to improved utilization of routine immunization in Garowe Town. The decision to vaccinate children is in the hands of the caregivers more that government policies. Caregivers that are more informed on the advantages on immunization routinely immunize their children. Maternal characteristics, sex of child and birth order of the child, place of delivery and antenatal care (ANC) follow up, household income, economic status, knowledge, attitude and practice of caregivers about immunization were the main factors associated with immunization coverage and immunization services utilization among children.

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