Utilization of Health Services by Household Heads With Children Under Five Years Old in Rufiji District, Tanzania

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Introduction

Since 1993, the government of Tanzania has embarked on implementing policy changes under its social sector strategy. Reforms in the health sector aim at improving efficiency, equity, quality of care, effectiveness, and sustainability of the health sector (MoH, 1994). The steps and strategic approaches initiated in the implementation of health sector reforms include decentralisation of authority, planning, and budgeting to the district level; diversification of funding sources; creation of a private/public mix; and introduction of an essential national package of health services such as the Integrated Management of Childhood Illnesses (IMCI), and the Insecticide Treated Nets (ITNs).

In Rufiji District, IMCI was one of the selected essential health services interventions in the 1996/97 District Health Plan. This involved empowering peripheral health workers with the knowledge and skills to identify common childhood illnesses, effect appropriate management, and counsel mothers and child caretakers on the prevention of childhood illnesses. These activities are being promoted through collaboration between District Health Management Teams (DHMTs), Tanzania Essential Health Interventions Program (TEHIP), and the World Health Organization (WHO). Apart from facilitating the availability and regular supplies of additional drugs, TEHIP is rehabilitating health facilities through community participation. To that end, a number of treatment protocols have been developed and made available to frontline health workers to guide them in the day-to-day management of childhood illness conditions. It is anticipated that such activities will stimulate proper health-seeking behaviour among mothers and child caretakers. IMCI interventions (which targeted childhood illnesses such as ARI, malaria, diarrhoea, and measles) are cost-effective, and reduce the burden of disease (BOD) considerably, between 21-28% for children

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(Bobadilla *et. al.*, 1994:173). Furthermore, WHO (1998) noted that the interventions improved the quality of child health care, strengthened drug supply and management, prevented and reduced mortality and morbidity from common childhood illnesses. Moreover, the interventions were envisaged to lead to child caretaker satisfaction, which in turn could lead to increased utilization of health services.

While the above advantages have been the basis on which the DHMT of Rufiji District has allocated its scarce health resources, various studies have indicated that the utilisation of health services is a function of a host of many interrelated factors (Barlow & Diop, 1995; Airey, 1992; Berman *et. al.,* 1994; Csete, 1993; Haddad & Fournier, 1995). Yet, very little is known about the factors that may influence the utilisation of the IMCI services. Understanding the use of the IMCI package may serve as a proxy indicator of the impact of the services.

The purpose of this article is to elucidate the above, and in particular to examine the patterns of utilisation of IMCI package, and the factors that influence those patterns of utilisation in Rufiji District. The article is divided into four sections namely the conceptual framework, research design and methodology, results (utilisation of essential health interventions (IMCI)), and factors influencing the utilisation of health services. The article ends with a discussion of the policy implications of the findings.

Conceptual Framework

Health services utilisation has been associated with several factors such as health status of individuals, socio-economic status, age, gender, organizational structure, and finance of health care. Zola (1964) has shown that health services utilisation is determined by five interdependent factors: awareness of symptoms, social values related to the disease, recognition of the specific disease, and perceived threat of the illness to the life of the individual. While illness behaviour involves the definition of symptoms, monitoring of the body, and utilisation of lay or professional help to rectify the perceived abnormality, Ware *et. al.* (1992) argues that illness behaviour is influenced by explanatory models of illness, that is, the conceptions of the nature of a particular illness episode, its causes and effects, perceived treatability of the illness, and efficacy of the treatment. Indeed, explanatory models rationalise decisions about what is most at stake, and what sort of treatment should be undertaken. These explanatory models are grounded in culturally defined systems of meanings, crystallizing out of local beliefs

about the nature of the body, of suffering, and of the person. In this regard, illness behaviour varies with culture. Symptoms are perceived, interpreted, and people act on them differently in different cultural contexts, resulting in highly distinctive experiences of illness.

The relative accessibility of health care services also plays an important role in determining what type of healers will be consulted. Accessibility is determined by a number of factors including distance, transportation, waiting time, linguistic barriers, and cost. Young (1981) showed that lack of money or transportation in a Mexican village resulted in people deciding not to consult a physician. A study by Christakis *et. al.* (1993) revealed that the utilisation of local government health dispensaries declined steadily as distance to the facility increased. Lack of drugs in health facilities has been observed by Glick *et. al.* (1989) to explain why mothers did not use anti-malarial drugs for their children in episodes of fever.

Perhaps a more encompassing exposition of the factors influencing the utilisation of health care services is the conceptual model of the user's choice of the health service established by Kroeger (1983). This model categorises the basis for the user's choice of health services into four main components: characteristics of the person, characteristics of the disease, characteristics of the services, and spatial characteristics. In combination, the four categories produce the primary choice of health service. Primary choice is not the actual choice because it is subject to considerations (benefits of choice, and its constraints), and upon this process it can be modified. It is the actual choice which leads to a particular health action, which may happen along this continuum: no action, self-treatment, utilisation of traditional healers, public health services, private health services or informal healers-vague (see Fig. 1). This conceptual model assists in structuring the multiple determinants influencing the utilisation of health care services, and in identifying key factors. This paper attempts to examine the extent to which the four aforementioned main components of the model influence the utilisation of health services in the study areas.

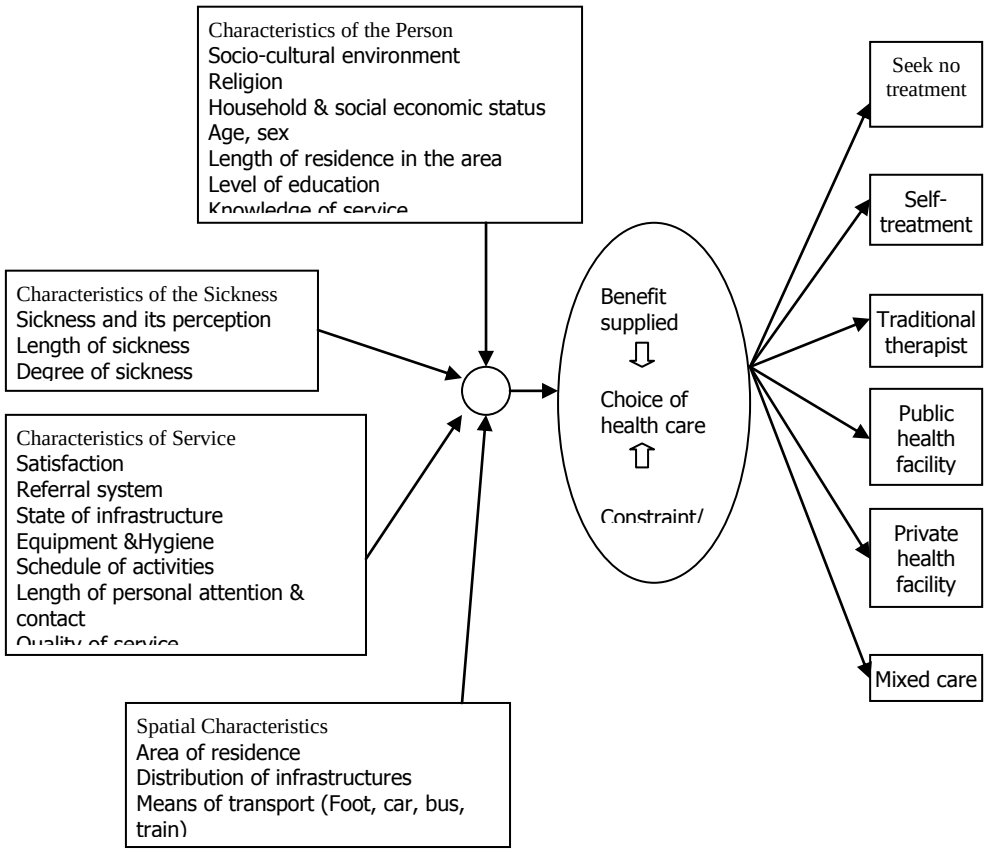

Fig. 1: **Conceptual Model for the Analysis of User Choice of Health Services**

Research Design and Methodology

Research Design, Study Sites and Sampling Procedures

This is a descriptive study in which semi-structured and structured questionnaires were administered to a cross-section of households in Rufiji District. The District was split into four strata (zones) based on geographical, ecological and cultural factors. Zones in Rufiji District were Upland North Zone (upland in the North of Rufiji River: Bungu-Nyambili); Flood Plain Zone (flood plain along the Rufiji River: Kilimani-Ngorongo-Ndundu Nyikanza-Mkongo), Delta and Coastal Zone (Delta Zone and Coastal Belt: Nyamisati-

Nyanjati-Salale-Saninga-Kiomboni-Kimbuga-Mchinga), and Upland South Zone (Upland in the South of Rufiji River: Muhoro-Kiwanga-Chumbi-Ndundu Tawa). In selecting the study villages in the district, we excluded villages that could not be easily reached especially during rain seasons, for logistical reasons. Two villages in each zone in which TEHIP Component B Modules B-1 and B-2 operated were included irrespective of being remote or inaccessible throughout the year. All other villages were included in the sampling frame. This process led to a random selection of two villages in each zone, thus making 4 villages per zone as follows:

1. *Flood Plain Zone* (*Kilimani*): Ndundu Nyikanza, Mkongo, Kilimani, and Ngorongo.
2. *Upland South Zone (Muhoro):* Chumbi, Ndundu Tawa, Kiwanga and Muhoro.
3. *Coast and Delta Zone (Nyamisati):* Salale, Saninga, Mchinga, and Kiomboni.
4. *Upland North, Coast and Delta Zone (Bungu):* Bungu, Nyanjati, Kimbuga, and Nyambili.

The above exercise was followed by listing all hamlets (*vitongoji*), including the number of households in the selected villages. Thereafter a Probability-Proportional-to-Size (PPS) sampling procedure (using Lahira's method) was used to get one hamlet in each of the selected villages. The purpose was to ensure that the hamlet being selected was directly proportional to its size. This was followed by listing all households with under-fives in each of the selected hamlets. Finally, a simple random sample of households with under-fives using a random table was used to select 20 households. In each of the 20 selected households, the heads of households (HoH) were eligible for interviews. Thus a total of 320 HoHs were selected for interviews.

Procedures

A questionnaire was used to elicit information. Besides examining the socio-economic status of the household, the HoH questionnaire also examined therapeutic choices and utilisation of IMCI. Face to face interviews were conducted with respondents to allow probing. The questionnaire was originally written in English and then translated to Kiswahili, a language understood by all respondents. A total of 7 research assistants and 14 enumerators were recruited and trained on how to administer the questionnaire for 7 days before the fieldwork. In the villages, village government secretaries were requested to assist in locating the selected respondents. Interviews were carried out in the homes of respondents.

Measures

The dependent variable was measured utilising IMCI, which serves as outcome indicators of the individuals' entry to, and passage through the medical care system. We used indicators of utilisation of health services mentioned by Aday and Andersen (1975), which include the age of the population who see a physician during a particular period of time (and those who did not); and the mean number of physician visits (frequently cited as volume measure of health service use). On the other hand, need-based use measures were considered in the context of whether people who needed care receive it. Medical need may be either perceived by the individual or evaluated by health care professionals. In this article, measures of use and need were both based upon self-reports, and hence depended upon the recall and awareness of the respondents. Moreover, the patterns of utilisation of IMCI package were reflected in the visits to health facilities by heads of households following illness of their children under five years of age, and the number of times they visited health facilities for childhood illnesses.

Independent variables were measured by the characteristics of the person: age, sex, level of education, knowledge of service, length of residence in the area, household socio-economic status, religion, ethnicity, size of households, and incomes. In addition, independent variables were measured by the characteristics of the sickness such as the type of sickness, its perception, length of sickness, and severity of sickness. Other independent variables measured include the characteristics of health care service such as satisfaction, referral system, state of equipment and hygiene, schedule of activities, length of personal attention and contact, quality of service, and cost of health care. Lastly, another category of independent variables measured was spatial characteristics of health facilities relative to residence of household heads. These included area of residence, distribution of infrastructures, and means of transport used to visit health facilities.

Data Analysis

We analysed data using SPSS for PC version 9.0. The predictor variables were recorded as shown in Tables 1-4. Chi-square was run to test whether utilisation of IMCI was associated with all or any of the socio-economic and demographic characteristics, childhood illness characteristics, spatial characteristics of health provision sectors, and service characteristics. We used multiple logistic regression analysis to establish the most important independent variables for the utilisation of IMCI services. Respondents with

missing information on various important items were excluded. On the socio-economic status of households, a factorial analysis on income (involving principal activity, secondary activity, supplementary income), savings, heritage (habitat and goods), and livestock was carried out together. The socio-economic score was then obtained by totalling these constitutes. Finally, households were classified in three groups: *low socio-economic status*—those whose score was inferior to the first quartile of the score; *middle socio-economic status*—those whose score lay between the first and third quartile; and *high socio-economic status*—those whose score was superior to the third quartile.

Utilisation of Health Care Services

To understand the utilisation of health services in the study areas, we asked respondents to state whether within the last two weeks preceding the survey their children under five years of age had illness conditions, and whether they visited health facilities for treatment. The results show that 253 out of 320 household heads (79.1%) reported that their children had had illness conditions such as coughs, diarrhoea, fever, malaria, '*degedege*', '*kimeo*', measles, asthma, and malnutrition. Of the 253 household heads that reported having had sick under-five children in the two weeks preceding the study, 88.5% had sent the children to health facilities for treatment.

Utilisation of health services by childhood illness episodes shows that more household heads (44%) utilized health services during fever episodes than other childhood illness conditions. This was followed by diarrhoea (14.5%), malaria (10.3%), coughing (9.8%) and '*degedege*' (6.7%). The utilisations of health services for other childhood illness conditions were insignificant (TEHIP, Comp. B: Annual Technical Report, 2000). Table 1 summarises the utilisation of health services by background characteristics, selected childhood illness conditions, and severity. It is evident from the table that respondents with primary education and above utilized health services slightly more than those without formal education. There seems to be no occupational difference in the utilisation of health services. The same is true for respondents of different socio-economic statuses. However, age seems to influence the utilisation of health services. Respondents in the age groups 16-30 years utilize slightly more health services than those in the other age groups. There seems to be gender differences in the utilisation of health services: male respondents seem to utilize more health services than female

respondents. This may be due to over-representation of male household heads in the sample.

Table 1: Utilization of health services by background characteristics, selected diseases and severity

Background Characteristics	N	Prevalence of Exposure	Utilization of health services (%)	P-value
Education				
Primary and above	188	67.3	92.4	0.300
No formal		90	32.7	87.8
Occupation				
Employed/Traders	52	18.9	90.4	0.795
Peasants	223	81.1	91.0	
Socio-economic status				
Low	163	59.3	91.1	0.878
Medium		67	24.4	91.0
High		45	16.4	88.9
Age				
16-30yrs	91	33.3	95.6	0.168
31-43yrs		91	33.3	90.1
44+		91	33.3	87.9
Distance to HF				
<1km	115	51.6	96.5	0.239
1.1-3km		58	26.0	93.1
Above 3.1km		50	22.4	90.0
Sex				
Male	238	86.5	97.3	0.219
Female		37	13.5	89.9
Ethnicity				
Ndengereko	162	58.9	90.1	0.374
Makonde	17	6.2	100	
Nyagatwa		58	21.1	87.9
Pogoro		38	13.8	94.7
Malaria				
Yes	246	89.5	91.5	0.262
No		29	10.5	86.2
Degedege				
Yes	243	88.4	91.4	0.328
No		32	11.6	87.5
Pneumonia				
Yes	164	59.6	91.1	0.698
No	111	40.4	90.1	
Diarrhoea				
Yes	258	93.8	91.5	0.192
No		17	6.2	82.4
Coughing				
Yes	261	94.9	91.2	0.370
No	14	5.1	85.5	
Fever				
Yes	250	90.9	90.8	1.00
No	25	9.1	92.0	
Malaria				
Very severe	189	77.8	93.1	0.357
Less severe		39	16.0	87.2
Not a problem	15	6.2	86.7	
Degedege				
Very severe	226	93.4	90.7	0.373
Less severe	16	6.6	100	
Not a problem	0	0	0	
Pneumonia				
Very severe	120	74.1	93.3	0.094
Less severe		30	18.5	90.0
Not a problem	12	7.4	75.0	
Diarrhoea				
Very severe	189	73.8	91.0	0.593
Less severe	41	16.0	95.1	
Not a problem	26	10.2	88.5	
Coughing				

Very severe	56	21.5	83.9	0.093
Less severe	106	40.8	92.5	
Not a problem	98	37.7	93.9	
Fever				
Very severe	66	26.3	87.9	0.451
Less severe	114	45.4	93.0	
Not a problem	71	28.3	88.7	

Table 1 also shows that distance to the health facilities matters in the utilisation of health services. Respondents who reside within 1km of a health facility tend to utilize more health services than those residing over 3km away. Childhood illness conditions such as malaria, '*degedege*', diarrhoea, and coughing seem to influence the utilisation of health services. Also, the severity of childhood illness conditions influences the utilisation of health services. Respondents who said their children had very severe malaria, '*degedege*', and pneumonia made more use of health services than those who reported that their children had mild illness conditions.

Factors Influencing the Utilisation of Health Care Services

To establish the most important factors influencing the utilisation of health care services, multiple logistic regression models were used to calculate odds ratios (OR) for health care utilisation by characteristics of the persons, characteristics of childhood illnesses, characteristics of the health care services, and spatial characteristics. The results are summarized in Table 2.

From Table 2, it is evident that primary education or above constitutes 41% of the utilisation of health services (OR=1.7; 95% CI=0.739-3.9135). Age group 16-30 years constitutes 66.5% (OR=2.99; 95% CI=0.9153-9.772), which is much higher than the age group 31-43 years that constitutes only 20% of the utilisation of health services (OR=1.2528; 95% CI=0.4927-3.1854). Distance of 1km to a health facility constitutes 67.7% of the utilisation of health services (OR=3.0832; 95% CI=0.7916-12.0084); while distances of between 1.1km to 3km to health facilities constitute only 33.3% of the utilisation of health services (OR=1.5; 95% CI=0.38-5.9208). Childhood illness conditions such as malaria constitutes 41% of the utilisation of health services (OR=1.741; 95% CI=0.5444-5.3939); *degedege* constitutes 33.3% (OR=1.5102; 95% CI=0.4834-4.7184); pneumonia constitutes only 16.7% (OR=1.1785; 95% CI=0.5143-2.7007); diarrhoea constitutes 56.5% (OR=2.2986; 95% CI=0.6133-8.6156); and coughing constitutes 41% of the utilisation of health services (OR=1.7246; 95% CI=0.3635-8.1818).

Perceived severity of childhood illness conditions also accounts to the utilisation of health services. Very severe malaria constitutes 52% of the

utilisation of health services (OR=2.0824; 95% CI=0.4239-10.2289), while less severe malaria constitutes only 5% (OR=1.0462; 95% CI=0.18-6.0805). Very severe pneumonia constitutes 91% (OR=4.6654; 95% CI=1.0509-20.7119), while less severe pneumonia constitutes 67% of the utilisation of health services (OR=3; 95% CI=0.5114-17.5983). Very severe diarrhoea constitutes 24.2% (OR=1.3197; 95% CI=0.3588-4.8530), while less severe diarrhoea constitutes 60.6% of the utilisation of health services (OR=2.5390; 95% CI=0.3948-16.3270). Less severe fever constitutes 40% of the utilisation of health services (OR=1.6822; 95% CI=0.6016-4.7043).

Table 2: Utilization of health services estimated by OR and attributable proportion and background characteristics (binary logistic regression)

Background Characteristics	N	Prevalence of Exposure	Estimated OR	95% CI	Attributable Proportion
Education					
Primary and above	185	67.5	1.7	(0.739, 3.9135)	41.0
Occupation					
Employed/Traders	52	18.9	0.93	(0.3306, 2.5943)	---
Socio-economic status					
Medium	67	24.4	1.33	(0.4522, 3.9139)	24.8
High	45	16.4	1.27	(0.3800, 4.4445)	21.3
Age					
16-30yrs	91	33.3	2.99	(0.9153, 9.7712)	66.5
31-43yrs	91	33.3	1.2528	(0.4927, 3.1854)	20.0
Distance to HF					
<1km	115	51.6	3.0832	(0.7916, 12.0084)	67.7
1.1-3km	58	6.0	1.500	(0.3800, 5.9208)	33.3
Sex					
Male	238	86.5	0.2477	(0.0325, 1.8884)	---
Malaria					
Yes	246	89.5	1.714	(0.5444, 5.3939)	41.0
Degedege					
Yes	243	88.4	1.5102	(0.4834, 4.7184)	33.3
Pneumonia					
Yes	164	59.6	1.1785	(0.5143, 2.7007)	16.7
Diarrhoea					
Yes	258	93.8	2.2986	(0.6133, 8.6156)	56.5
Coughing					
Yes	261	94.9	1.7246	(0.3635, 8.1818)	41.0
Fever					
Yes	250	90.9	0.8503	(0.1901, 3.8742)	---
Malaria					
Very severe	189	77.8	2.0824	(0.4239, 10.2289)	52.0
Less severe	39	16.0	1.0462	(0.1800, 6.0805)	5.0
Degedege					
Very severe	226	93.4	0.0010	(0.0000, 0.000)	---
Pneumonia					
Very severe	120	74.1	4.6654	(1.0509, 20.7119)	91.0

Less severe	30	18.5	3.000	(0.5114, 17.5983)	67.0
Diarrhoea					
Very severe	189	73.8	1.3197	(0.3588, 4.8530)	24.2
Less severe	41	16.0	2.5390	(0.3948, 16.3270)	60.6
Coughing					
Very severe	56	21.5	0.3407	(0.1144, 1.0145)	--
Less severe	106	40.8	0.7992	(0.2671, 2.3912)	--
Fever					
Very severe	66	26.3	0.9206	(0.3245, 2.6122)	--
Less severe	114	45.4	1.6822	(0.6016, 4.7043)	40.0

The study was also interested in understanding the influence of health care services characteristics on the utilisation of health services. Service characteristics were measured by the information obtained from health care providers concerning hours and days in which health facilities were open to the general public; health provider-patient interactions; perceived quality of care; availability of drugs; equipment and other medical supplies; efficacy of treatment; satisfaction with the services; and costs for treatment. Findings indicate that four out of five (84%) respondents who utilized the IMCI package during the illness episodes of their under-fives said the information given by health providers was understood. Slightly over half of the respondents who visited health facilities during the illness episodes of their children were of the view that health providers showed personal concern when attending sick children. The remaining respondents said health providers showed no personal concern. The mean hours in which health facilities were open for the general public was approximately 9 hours per day.

On the perceived quality of care, respondents were asked if health providers showed personal concern while attending their sick children. In their responses, 78.9% said that health providers showed personal concern, 18.8% said they 'somehow' showed concern, and only 2.3% said they did not show personal concern. On the perception of services rendered by health providers, over two-thirds (66.9%) of the respondents said the services were good. However, over two-thirds (68.4%) of the respondents said there were few clinic officers and nurses in the health facilities. On the other hand, over 80% of the respondents mentioned that medical equipment was either not enough or not available in the health facilities. When asked to comment on the availability of drugs in health facilities, 77% of the respondents said drugs were sometimes not available, and 0.8% said they were not available all the time.

When stepwise selection of independent variables in multiple logistic regression analysis was calculated, three regression models were obtained. In the first model, the most important independent variables in the utilisation of health services were education, occupation, socio-economic status, age, distance to health facility, presence of malaria, '*degedege*', pneumonia, diarrhoea, coughing and fever as summarised in Table 3.

It is evident from Table 3 that socio-economic and demographic characterristics of the population influence the utilisation of health services in Rufiji.

Table 3: Utilization of health services estimated by OR and attributable proportion and background characteristics (Multiple Regression OR estimates)

Background Characteristics	N	Prevalence of Exposure	Estimated OR	95% CI	Attributable Proportion
Education					
Primary and above	185	67.5	1.4783	(0.4283, 5.1029)	33.0
Occupation					
Employed/Traders	52	18.9	0.8613	(0.2128, 3.4872)	---
Socio-economic status					
Medium	67	24.4	2.412	(0.5222, 11.1308)	58.5
High	45	16.4	0.9797	(0.2103, 4.5636)	---
Age					
16-30yrs	91	33.3	1.712	(0.3674, 7.9810)	41.6
31-43yrs	91	33.3	1.0116	(0.2600, 3.9359)	1.1
Distance to HF					
<1km	115	51.6	3.3985	(0.8466, 13.6421)	70.6
1.1-3km	58	26.0	1.6302	(0.3800, 5.9208)	38.6
Malaria					
Yes	246	89.5	1.4783	(0.4379, 4.9902)	32.4
Degedege					
Yes	243	88.4	1.3091	(0.3704, 4.6260)	23.6
Pneumonia					
Yes	164	59.6	1.0709	(0.4586, 2.5008)	6.6
Diarrhoea					
Yes	258	93.8	1.8197	(0.4323, 7.6606)	45.0
Coughing					
Yes	261	94.9	1.6256	(0.2940, 8.9890)	38.5
Fever					
Yes	250	90.9	0.6086	(0.1152, 3.2162)	---

Primary education or above constitutes 33% of the utilisation of health services (OR=1.4783; 95% CI= 0.4283-5.1029), while medium socio-economic status constitutes 58.5% (OR=2.412; 95% CI= 0.5222-11.1308). Whereas age group 16-30 years constitutes 41.6% to the utilisation of health services (OR=2.412; 95% CI=0.3674-7.9810), age group 31-43 years constitutes only 1.1% (OR=1.0116; 95% CI=0.262-3.9359). Spatial configurations of the health

facilities in relation to residence of heads of households also influence the utilisation of health services. Distance within 1km to health facility constitutes 70.6% (OR=3.3985; 95% CI=0.8466-13.6421), while distance between 1.1-3km constitutes 38.6% to the utilisation of health services (OR=1.6302; 95% CI=0.382-5.9208). Childhood illness characteristics also influence the utilisation of health services. Childhood illness conditions such as malaria constitute 32.4% to the utilisation of health services (OR=1.4783; 95% CI=0.4379-4.9902); '*degedege*' constitutes 23.6% (OR=1.3091; 95% CI=0.3704-4.6260); pneumonia constitutes only 6.6% (OR=1.0709; 95% CI=0.4586-2.5008); diarrhoea constitutes 45% (OR=1.8197; 95% CI=0.4323-7.6606), while coughing constitutes 38.5% to the utilisation of health services (OR=1.6256; 95% CI=0.2940-8.9890). Severity of childhood illness conditions did not relate to the utilisation of health services in the first model.

In the second model, socio-economic and demographic characteristics, spatial configuration of the health facilities in relation to the residence of heads of households, together with and childhood illness characteristics combined to influence the utilisation of health services. As shown in Table 4, the second model had socio-economic status, distance to health facility, sex, malaria, and diarrhoea as independent variables in the utilization of health services.

Table 4: Utilization of health services estimated by OR and attributable proportion and background characteristics (Multiple Regression) Last but one Model

Characteristics	N	Prevalence of Exposure	Estimated OR	95% CI	Attributable Proportion
Socio-economic status					
Medium	67	24.4	0.4222	(0.0922, 1.9321)	---
High	45	16.4	0.4581	(0.1231, 1.7043)	---
Distance to HF					
<1km	115	51.6	2.5603	(0.6028, 10.8740)	60.9
1.1-3km	58	26.0	1.2517	(0.2739, 5.7201)	20.0
Sex					
Male	238	86.5	0.2477	(0.0325, 1.8884)	---
Malaria					
Yes	246	89.5	1.7678	(0.4051, 7.7144)	43.5
Diarrhoea					
Yes	258	93.8	2.9284	(0.5904, 14.5299)	65.8
Last Model					
Diarrhoea					
Very severe	189	73.8	4.200	(1.0362, 17.0234)	76.0

Of these, distance to health facility, incidence of malaria, and diarrhoea contribute significantly to the utilisation of health services. Distance within 1km to the health facility constitutes 60.9% to the utilisation of health services

(OR=2.5603; 95% CI=0.6028-10.8740), while distance over 1km but less than 3km to a health facility constitutes 20% (OR=1.2517; 95% CI=0.2739-5.7201). Childhood illness conditions, such as malaria, constitute 43.5% (OR=1.7678; 95% CI=0.4051-7.7144), and diarrhoea constitutes 65.8% to the utilisation of health services (OR=2.9284; 955 CI=0.5904-14.5299). The last model had only one variable: namely, perceived severity of diarrhoea, which constitutes 76% to the utilisation of health services (OR=4.200; 95% CI=1.0362-17.0234).

Discussion

The study has shown that health services were utilized mainly for childhood illness conditions such as fever, diarrhoea, malaria, coughing, and '*degedege*'. The utilisation of health services for other childhood illnesses was insignificant. This is due to the perceptions people hold of childhood illnesses. According to the TEHIP, Comp. B annual report (2000), people in Rufiji District perceive some childhood illnesses as very severe, while others as not severe. Childhood illnesses that are perceived not to be severe are not treated in health facilities. Instead, people use self-medication or home remedies. Also, there are some childhood illnesses that are perceived as caused by supernatural forces. These include '*degedege*', measles, '*kimeo*', and asthma. In this regard, local people perceive these childhood illnesses as not treatable in modern allopathic health facilities, but rather are better handled by traditional healers. Childhood illnesses such as '*degedege*', particularly when they are very severe, are not taken directly to health facilities for fear that health providers will administer an injection and thereby lead to the death of the child. In such a case, people apply home remedies first so as to lower the temperature before taking the sick child to a health facility. The same applies in the case of measles.

Various studies have shown that differences in the utilization of health services depend upon factors such as educational level, economic status, and population characteristics (Pandey & Tiwary, 1993; Oparaocha, 1992). The results of the present study have shown that personal characteristics such as primary education and/or above, and age group 16-30 years attributed to the utilisation of health services by 41% and 66.5% respectively. These findings are consistent with the results by Mapelli (1993) who showed that age and education are the predisposing variables in the utilisation of health services. Education enhances life management potential, the ability to cope with change, and a sense of control over circumstances—key factors that influence the utilisation of health services (Marmot, 1994).

Eyles (1990) shows that spatial configuration of health care systems locates the structure of provision and shapes the nature of availability and accessibility (within the economic and allocation parameters) of health services. The results from the last but one model of the multiple logistic regression analysis showed that distance to health facilities of between 0-1km accounted for 60.9% of the utilisation of health services in Rufiji District. A study on spatial patterns of the use of health services in the Kingston metropolitan area, Jamaica, showed more or less similar findings. Residents of the metropolitan area who were near health facilities made much greater use of public health services. Similarly, Oparaocha (1992) showed that there was a significant difference in the utilisation of health services between household heads residing in different geographical locations to health facilities. The geographical location of health facilities in Rufiji District varies considerably. On the average, the distance from household heads to the nearest health facility in Rufiji District range from 3.4km to 9.4km. The three main means of transport in the district are foot, bicycle, and canoe. Over 70% of the respondents relied on foot to visit health centres for treatment of their sick children. The duration of a return journey to and from health facilities differs by stratum or zone, the average being 3.8 hours.

The study has shown that the characteristics of childhood illness conditions influence positively the utilisation of health services in Rufiji District. It was shown in the last but one model of the multiple logistic regression analysis that malaria and diarrhoea accounted for 43.5% and 65.8% respectively of the utilisation of health services in the study areas. The last model had only one variable: namely, perceived severity of diarrhoea. This indicates that the utilisation of health services in Rufiji District is primarily influenced by very severe diarrhoea. These results are consistent with the findings of previous studies (Mapelli, 1993; Wagstaff *et. al.,* 1991). One possible explanation for the big influence malaria and diarrhoea has on the utilisation of health services is that signs and symptoms, as well as the causes of these childhood illnesses are well known to most members of the communities.

In terms of our conceptual model of user's choice of health service, the results of this study support the key factors influencing the utilisation of health services. The findings show that characteristics of childhood illnesses play a considerable role in influencing the utilisation of health services. The most important independent variable was very severe diarrhoea, which constituted up to 76% of the utilisation of health services. Also playing a

considerable role was the knowledge of childhood illness conditions. In Table 4, it was shown that knowledge of diarrhoea and malaria constituted 65.8% and 43.5% respectively of the utilisation of health services. In addition, spatial characteristics were shown to play a role in influencing the utilisation of health services. Distances of within 1km to health facilities constituted 60.9% of the utilisation of health services. All the above suggest that the primary and secondary determinants combine to influence to the utilisation of health services in Rufiji District.

Conclusions

Although drawn from a limited sample size, the findings have shown that health services were not utilized for all childhood illnesses. Instead, some childhood illnesses were treated in other medical systems available in the district. The study showed further that the primary determinant of the utilisation of health services in Rufiji District was severe diarrhoea. Secondary determinants of the utilisation of health services were knowledge of childhood illness conditions (diarrhoea and malaria), and spatial characteristics, particularly distances of within 1km to a health facility. In combination, the primary and secondary determinants might explain the observed utilisation of health services in Rufiji District.

The findings of this study have policy implications. Appropriate health education and information should be developed and promoted by DHMTs not only to improve the health status of the children under five years of age, but also to decrease the burden of childhood diseases in the district. This is because household heads seem not to have fully utilized the IMCI package. Indeed, the future success of the IMCI services will depend on their being promoted more systematically into local communities, with concomitant strengthening of management support and supervision.

The underutilisation of health services is partly a reflection of the inadequacies of the health care system used by the people. This implies health education efforts alone will not eliminate low use of the services unless accompanied by structural improvements in the existing delivery systems. This requires fundamental changes in the organization and distribution of health care services.

Lastly, to improve the use of essential health interventions such as IMCI, there is a need to take steps to close the gap between behavioural and cognitive change. As shown in the TEHIP Comp. B Annual Technical Report

(2000), people are availing themselves of medical services without fully understanding them. People must have a cognitive framework in which to place their experiences with modern health care services if they are to make effective use of professional care. In this regard, the DHMTs—and health providers in general—should be trained to function not only as clinicians but also as educators who can explain to members of the communities—and patients in particular—the reasons for their illnesses, the treatment prescribed, and how to prevent the occurrence of preventable and communicable diseases.

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