Determinants of Household's Membership to Community Health Fund Scheme in Central Tanzania: A Case of Mkalama District

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ABSTRACT

Many developing countries have adopted Community- Based Health Insurance (CBHI) methods as a part of a broader solution to health care financing problems in their countries. Despite of its advantages, Community Health Fund Schemes (CHFs) are faced with low enrolments. Thus, this paper aimed at analysing socio-demographic factors influencing community enrolments in CHF in Mkalama District, Central Tanzania. Household questionnaire survey and key informant's interviews were used as methods for data collection. Logit regression model was used to evaluate factors influencing community to join the scheme. The results showed that community awareness, premium affordability and community participation were significantly positively correlated with membership, while the distance was statistically significantly negatively correlated with membership. Other variables such as age, marital status, education level, improvement of quality of health services and household size though not statistically significant, had positive correlation with membership. Gender had insignificantly negatively correlated with membership. Therefore, CHF design needs to recognise these factors and build in mechanisms to attract members by enhance enabling factors while reduce constraining factors.

Keywords: Health schemes, Insurance, community.

1.0 INTRODUCTION

Health financing systems are generally recognized to be powerful methods to achieve a universal coverage with an adequate financial protection for all against healthcare costs (Carrin *et al.*, 2005). This can be through a general taxation or through the development of social health insurance. These systems intend to respond to the goal of fairness in financing, in that beneficiaries are requested to pay according to their means while guaranteeing them the right to health services according to the need (Carrin *et al.*, 2005). In tax-funded systems, the population contributes indirectly via taxes, whereas in social health insurance systems, households and enterprises generally pay in via contributions based on salaries or income.

The concept of community-based health insurance (CBHI) now receives a considerable attention in the literature (Jütting 2001; Wiesmann and Jütting, 2001; Ahuja and Jütting, 2003). The key advantages of CHF schemes is that, they provide a means to shift away from Out Of Pocket expenditures to an increasing prepayment and risk sharing for poor the people Preker *et al.* (2004). CBHI schemes reach poor households with fluctuating income streams and low asset bases such as informal sector workers. Indeed, CHF appears to extend its coverage to many rural and low-income populations, who would otherwise be excluded from collective arrangements to pay for healthcare (Jakab and Krishnan, 2004), and lastly, the schemes do not only offer improved access to healthcare for the poor people but may also improve the quality of care as a result of community participation in the schemes, hence, more accountability from healthcare providers (Jacobs *et al.*, 2008).

Many developing countries have adopted both methods as part of a broader solution to health care financing problems in low income countries (Bennett, 2004; Schneider, 2004). The Tanzanian government introduced the Community Health Fund (CHF) in 1996 as one form of social health insurance scheme. CHF is implemented at the district level, as a voluntary prepayment scheme, targeting the population living in rural areas and/or employed in the informal sector (MoH, 1999). Despite of its advantages, CHF scheme in developing countries is faced by number of challenges. One of the major problems facing CHF in developing countries is low enrolments in the scheme. Indeed, in Sub-Saharan Africa coverage rarely attains more than 10% of the target population (De Allegri *et al.*,

2006) with some exceptions in countries such as Rwanda and Ghana (Twahirwa, 2008; Amporfu, 2013).

Tanzania like other African countries, enrolments in CHF is generally low compared to the targeted population after more than 16 years of operation, which at 10% falls far short of the 70% level envisaged by the government (Shaw, 2002). Reasons for the low enrolments were pointed out as the widespread inability to pay membership contributions, the poor quality of the available services, a failure among the communities to see/understand the rationale for protecting against the risk of illness, and a lack of trust in CHF managers (Kapinga and Kiwara 1999; Shaw 2002; URT 2003). However, generally, little is currently known about how these barriers vary between socio-economic groups within the overall targeted population. Findings from various studies had revealed that households and community characteristics, that is, age, gender, income and level of education of the head of households were among the factors determining households' membership in CHF in rural areas (Jütting, 2001; Osei-Akoto, 2001; Ahuja and Jütting, 2002; Lammers and Wermerdam, 2010). Such understanding is necessary in developing future implementation strategies that take account of differing needs across population groups. The same factors are expected to influence household demands for CHF in rural areas in Tanzania. This paper therefore, aimed at identifying factors influencing enrolments in the CHF, by taking a case of Mkalama District.

2.0 METHODOLOGY

Mkalama District is situated in the North of the Singida region in Tanzania and located between Latitudes 4^{o} and 4.30^{o} South of the Equator and Longitudes 34^{o} and 35^{o} East of Greenwich Meridian. The District Council covers an area of 3,365.51 square Kilometres of which 44% is an arable land (District Strategic Plan, 2013-2018). The selected area for the study was Iguguno ward with the villages of Iguguno, Tumuli, Milade, Senene Lukomo and Kitumbili. The area was selected because since the scale up of CHF in the district, the ward had only registered less than 250 households, against 5152 households (Mkalama District CHF Annual Reports, 2014). However, only two villages were involved for the study: Iguguno and Tumuli villages. According to the population and housing census of 2012, the total population of the district is 188, 733, while growth rate stands at 2.7% with a household size of 5 people (URT, 2012). Major economic

activities include agriculture, animal husbandry and lumbering. The district has 35 health facilities both public and private owned. These facilities include: 1 hospital, 4 health centers and 30 dispensaries.

This study adopted a cross sectional research design to provide both qualitative and quantitative data as it allows the use of a combination of several methods in data collection, hence, increases reliability and accuracy of data (Creswell, 2003; Kothari, 2004). Household questionnaire survey, key informant's interviews and documentary review were used as methods for data collection. Iguguno village had 722 households while Tumuli village 584 households making 1306 total households. A sample size intensity of 10% of the total households was selected for the study; this made a sample size of 130 households selected for the study. Household question survey was administered to the head of households selected randomly from the two selected villages by using village registers as a sample frame. A purposeful sampling was used in the selection of the key informants for key informant's interview.

IBM-SPSS version 20 was used in data analysis. A descriptive statistical analysis was employed whereby frequencies; percentages and the measure of central tendency of variables were generated. In addition, logit regression analysis was performed to determine the effects of socio-demographic characteristics of households on CHF membership. In the logit model, the dependent variable is binomial and the estimated probability values ranges between 0 and 1. The multivariate logit models used is expressed as:

$$Y_i = F(B_o + B_1X_{1i} + \ldots + B_kX_{ki} + u_i)$$

Whereby: Y_i = is the probability that a household is member of CHF ranges from 0 to 1; $X_1.....X_k$ = Explanatory variables, B_o = Regression constant, $B_1...B_k$ = parameters to be estimated, u_i = a disturbance term and F = Cumulative probability density function for logistic distribution. Table 1 shows description and measurement of variables employed in the logit model estimation.

Table 1: Measurement of variables and *a prior* expectation

Variables	Description a prior expectations
Membership	*Dependent variable*: 1 = if a household is a member of CHF; and 0, otherwise
Age	Age of head of households in years; positive
Gender	1 = if a household is a male; 0 = female
Marital status	1 = if a household is married, and 0 otherwise; positive
Education level	1= if a household had a formal education; and 0 otherwise; positive
Household size	Number of household's members per household head; positive
Monthly income	Income in TAS; positive
CHF awareness	1 = if a household is aware of CHF, and 0, otherwise
Premium affordability	1 = if a household can afford the premium, and 0 otherwise
Participation	1 = if a household participated in setting premium and other CHF activities/decisions, and 0 otherwise
Improvement of quality of services	1 = if a household perceived an improvement in quality of health services as results of CHF, and 0 otherwise
Name of village (Distance)	1 = if a household reside in Iguguno village (less distance to health services; and 0 otherwise

Note: TAS = Tanzanian Shilling (1USD = 2100 TAS) during the field survey

3.0 RESULTS AND DISCUSSION

3.1 Descriptive Statistics of Variables

Summary statistics in Table 2 reveals that majority (75%) of the respondents were male, the average age of respondents was 43 years with majority (65%) having age below 50 years. Majority (66%) of the respondents were married, while the mean household size was 5 with majority of households having household size of between 4 and 5 members. The reported mean household size is comparable to the national mean household size's level (URT, 2012). Almost 81% of respondents had a primary level of education.

Table 2: Definition and dominance indicators of the socio-economic variables

Variable description	Dominance indicators	Mean	Min	Max
Age (years)	65% had age below 50 years	43.7	18	80
Gender	75% were male	-	-	-
Marital status	66.2% were married	-	-	-
Education level	81.5% had primary education	-	-	-
Household size	70.8% had 4 -5 members	5	3	8
Monthly income (TAS)	86.2% had earned 1,001 – 100,000 TAS	63,335	1000	350,000
Premium affordability	69.2% afford premium	-	-	-
Participation in premium setting	80% did not participate			
Improvement of quality of services	57.7% perceived improved	-	-	-
Name of village (Distance)	62.3% were from Iguguno village	-	-	-
CHF awareness	78.5% were aware of CHF	-	-	-
Membership	54.6% were members of CHF	-	-	-

Mean monthly earned income was 63,000/=TAS with majority (86%) of respondents earning almost less than 100,000/=TAS. Therefore, it can be concluded that respondents involved in this study were adults and educated to the extent that could provide a valid, accurate as well as reliable data for the study. Almost 69% of the respondents were of the opinion that premium rate was affordable, while majority (80%) claimed not to participate in setting up of the premium rate. In addition, 57% of the respondents claimed that quality of the health services had improved as a result of CHF. Majority of the respondents (62%) came from Iguguno village where health services facilities were available within the village, hence their availability. While majority of the respondents (78%) were aware of the CHF, only 55% were members of CHF at the time of the survey. This implied that apart from being aware, there could be some other factors that may constraint household to join the scheme.

3.2 Factors influencing community membership to CHF scheme

Table 3 shows logit model estimation results. According to the results, the rate of the correct estimations was 85.4% and R^2 was 62.1. The logit regression model fits well to the data due to the significance value ($p < 0.0001$) of the constant. The -2 log likelihood of 97.881 implies good fitness of data to the model, whereas the

overall percentage of 85.4% signifies correct predictions of the dependent variable by the model. The model Chi-square of 81.228 at 12 degree of freedom and $p < 0.0001$ implies a significant influence of the independent variables on the dependent variable. Of the 12 variables, seven had positive influence over membership while 5 had negative influence over membership. Out of 12 variables, four variables were found to have statistically significant influence over membership (Table 3).

3.2.1 Age, marital status and gender of the respondents

Age of the respondents had a positive influence on membership, though not statistically significant ($\chi^2 = 0.230$; $p = 0.632$) implying that an increase in age will likely motivate people to join the scheme. For instance, this study shows that almost 60% of the members had an age greater than 39 years. This is due to the fact that age increases with increase in number of dependants which had implication to Out Of Pocket expenditure to health services. Marital status, though not statistically significant, had a positive influence over membership. About 67% of members were married coupe. This implies that married couples will likely join the scheme due to the fact that marriage usually are associated with having children, hence, increase in number of household's members.

Table 3: The estimation results of the logit model

Variables	Coefficients	Standard Error of the Coefficients	Wald Statistics	p	Odds ratio (exp B_i)
age	0.011	0.023	0.230	0.632	1.011
gender	-0.240	0.598	0.162	0.687	0.786
Marital status	0.689	0.642	1.150	0.284	1.991
Education level	2.037	1.287	2.505	0.113	0.130
Household size	0.302	0.308	0.960	0.327	0.740
Monthly income	0.000	0.000	0.504	0.478	1.000
CHF Awareness	3.553	1.114	10.161	0.001*	34.903
Premium affordability	2.202	0.717	9.432	0.002*	9.040
Community participation	1.615	0.829	3.795	0.051*	5.030
Quality of the services improved	0.601	0.615	0.954	0.329	1.823
Location (village)	-1.362	0.689	3.908	0.048*	0.256
Constant	-2.032	3.150	0.416	0.519	0.131
No of observation	130				
2-Log likelihood function	97.881	*Significant at 0.05 level			
LR Chi^2	81.228				
Pseudo R^2	62.1				

A similar finding was reported by Macha *et al.* (2014) from four districts in Tanzania. Gender of respondent was negatively associated with membership of the scheme and statistically not significant implied that women were likely to join the scheme than men. The findings were also reported by Parmar *et al.* (2013) and Macha *et al.* (2014) who found out that gender was not significantly correlated to enrolment.

3.2.2 Level of education and household size

With regards with level of education of the respondents, education was found to influence community membership positively. About 65.5% of the CHF members had formal education against only 8.5% of the members who had no formal education. This is due to the fact that education tends to increases understanding and knowledge about the scheme, thus, affecting the decision to join or not. A study conducted by Ito and Kono (2010), Chankova *et al.* (2008) and Msuya *et al.* (2004) found out that households headed by persons with formal education were more likely to join insurance than others.

Household's size and membership of CHF were positively related but not statistically significant ($p = 0.05$). Results show that almost 95% of the respondents who were members had household size greater than 4 members. This implies that households with many members were likely to join the scheme than those with few members. A study conducted in Edo state Nigeria by Oriakhi and Onemolease (2012) and in Tanzania by Msuya *et al.* (2004) and Macha *et al.* (2014) found that respondents with larger families were more likely to be willing to join in community based health insurance scheme than those with smaller household size. This may be as a result of the high financial burden faced by large households when seeking health care services.

3.2.3 Household income and Premium affordability

Results indicate that household monthly income is positively associated with CHF membership, though not statistically significant. Those with high incomes were likely to join the scheme than those with less income. This was also observed by a study conducted in West Africa by Chankova *et al.* (2008), Kamuzora and Gilson (2006) and Msuya *et al.* (2004) in Tanzania, and Kimani *et al.* (2014) in Kenya that, for the people with low incomes, inability to pay membership contributions was the most important barrier. In contrast, De Roeck *et al.* (1996) found that

household income had no significant relationship with becoming a member while Oriakhi and Onemolease (2012) found out that income level shows a negative and significant relationship with respondents' willingness to participate in CBHI scheme.

Premium affordability was significantly positively associated with CHF membership as in order to become a member one should pay contributions. Result revealed that 87.3% of members claimed to afford the premium. These result implied that most respondents can afford to pay the contribution. A study conducted in Burundi by Arhin (1994) and Ghana and Burkina Faso by Gobah (2011) indicated that affordability of the premium and contributions were mentioned as the major barrier to enrolments. This high affordability reported in this study was due to inauguration of TASAF III with the objective of providing social protection to the destitute households by providing conditional cash which will help them to cover education and health services, hence solved the problem of premium in affordability by poor households. As a result, since the implementation of TASAF III in 2014, enrolment of members has increased. Proportion of enrolment rose from 8.5% in 2013 to 16.2% and 10.8% in 2014 and 2015, respectively. However, the rapid rise of enrolment rate at this point does not guarantee sustainability of accessibility of healthcare services in public health facilities, especially after phase out of TASAF III. The study conducted in India by Cohen (2006) found that in Karnataka, where the United Nations Development Programme (UNDP) decided to assume the cost of insurance premiums for three years in the CBHI initiative launched by Karuna Trust, outreach workers initially signed up 82,000 participants, but when the beneficiaries were asked in the program's fourth year to pay the premium by themselves, the enrolments plunged to only 25,000.

3.2.4 Community awareness and participation

Community awareness over CHF were found to be significantly influencing positively community membership (χ^2 = 3.553; p = 0.001). Almost 79% of respondents were aware of the scheme, while slightly above 50% of whom were member of the scheme. This implied that apart from awareness, other factors could have significantly constrained households to join the scheme. Another factor may be community participation, community participation in designing and setting the amount of premium seemed to significantly influence the enrolment of

member in the scheme (χ^2 = 1.615; p = 0.051) (Table 3). For instance, a study conducted in Mufindi reported that poor performance of the scheme in district was a result of poor community involvement in designing the scheme (Mahingika, 2007). According to Gilson (1997) and Hsiao (2001), the community participation is seen as a mechanism to build accountability to the users of health care, improvements in revenue collection, cost-containment, and improvement of access and quality of services.

3.2.5 Quality of services provided by the scheme and location (Distance)

Quality of the health services provided by the scheme was found to be insignificantly positively correlated to membership (Table 3). Though not statistically significant, by improving the quality of services will likely motivate households to join the scheme. Majority of the respondents (64%) reported that the quality of services provided after the implementation of the CHF had improved compared to services before the establishment of the scheme. The results show that 46.2% of respondent perceived satisfactory improvement in health services while 26.9% perceived very unsatisfactory services (Table 4) with a mean score of 2.3 implying improvement at satisfactory level (cutting point 2.0).

Table 4: Respondents' opinion on the quality of services provided under CHF

Views on quality of services	Frequency	Percentage
Very satisfactory	6	4.6
Satisfactory	60	46.2
Unsatisfactory	29	22.3
Very unsatisfactory	35	26.9
Total	**130**	**100.0**

Quality of services is the area with many complaints in public health facilities whereby shortage of medicines, medical equipments and enough health personnel are reported as challenges facing most public health facilities forcing households seeking health services from other sources (Berkhout and Oostingh, 2008; URT, 2014; Mtei *et al.*, 2014). Findings from studies conducted in Latin America and Caribbean show that satisfaction with the availability and the quality of health care seems to vary considerably across countries whereby more than 70 percent of people in Uruguay, Costa Rica, and Venezuela reported satisfaction with the

healthcare services (Savedoff, 2009). An improvement of quality of services includes continuous availability of medicines and supplies, referrals and portability of CHF membership card across health facilities in the district was found to be important to enhance and sustain CHF membership's enrolments (Stoermer *et al.*, 2012).

Name of village (location) had a negative association and statistically significant (X^2 = 3.908; p = 0.048). Households from Iguguno village will likely become members compared to households from Tumuli village. This is due to the fact that, health facilities were available and closer in Iguguno while there is no any health facility in Tumuli village. This has an impact in members enrolment as those households from Tumuli had to travel a long distance (9 kilometres) for registration. Findings from key informants revealed that peoples had to use 2000 TAS for transport to access health services in Iguguno village. Mubyazi and Borg (2012), Msuya *et al.* (2004) and Preker and Carrin (2004) urged that community live near health services were likely to join the scheme.

4.0 CONCLUSION AND RECOMMENDATIONS

The study has revealed that several socio demographic and governance factors were found to influence community to enrol in CHF scheme. These factors may either enable or constrain the community to join the scheme. CHF design needs to recognise these factors and build in mechanisms to attract members by enhance enabling factors while reduce constraining factors. Raising awareness and understanding of the risk pooling principle is essential among the population. The government should review strategies to subsidize poor households so as to come up with sustainable ways to help the poor to pay their health services even after the phasing out of social protection programmes. In addition, the government should improve health care services in public health facilities in order to attract people to join the scheme and increase access of quality services by the poor.

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