Determinants of enrollment in the Improved Community Health Fund among household members in Manyara Region, Tanzania

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Abstract

Background: The improved community health fund (iCHF) concept was developed to increase access and utilization of health services while achieving financial protection against financial hardship. This study aimed to assess determinants of enrollment to the iCHF among household members in the Manyara region, Tanzania.

Method: A cross-sectional study design was employed to collect quantitative data in the two selected districts of the Manyara region from January to March 2021. Data were collected using a structured questionnaire. The multivariable logistic regression model was employed to determine the predictors of enrollment to the iCHF.

Results: Out of 403 participants sampled for this study, 157 (39%) were enrolled in the iCHF. After controlling for the potential confounder in the multivariate analysis results showed that, marital status (aOR=3.79; P=0.04), average income (aOR=3.01; P<0.001), chronic disease or disability (aOR=1.93; P=0.04), family size (aOR=4.55; P=0.009) and awareness of iCHF (aOR=5.89; P<0.0001) were predictors of enrollment in the scheme.

Conclusion: Enrollment in the iCHF among community members is still low and the predictors for enrolment include marital status, average income, family size, chronic diseases or disabilities, and awareness of the scheme. The iCHF can be a pathway to universal health coverage through continuous health education on the importance of enrolment in the scheme.

Keywords: iCHF, Enrollment, Determinants, Manyara, Tanzania

Background

According to World Health Organization (WHO), almost half of the world's population in developing countries does not have access to essential health services (WHO, 2019). After independence, many African countries provided free health services to the citizens as an essential human need which predisposed the government to have a burden of expenditure and inadequate health services (Dutta, 2015). During economic crisis resulted in a structural adjustment program with three major changes in the health system. This includes the implementation of health insurance, public-private partnership, and cost-sharing to increase access to healthcare services and achieve Universal Health Coverage (UHC) (Dutta, 2015; Dye et al., 2013; Raasveld et al., 1993). The UHC focuses on the structure of the health system that can provide equitable healthcare access and financial protection to the people, regardless of their capacity to pay (World Health Organization, 2010).

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Low and middle-income countries adopted pre-payment mechanisms in form of community-based health insurance (CBHI). CBHI refers to voluntary, non-profit health insurance, normally organized at a local level where formal health insurance does not provide protection. The principle used in the CBHI includes prepayment mechanism, resource pooling, risk-sharing, and negotiation with other partners in the health system to improve access and quality of healthcare services. In Tanzania, the CBHI scheme was named "Community Health Fund (CHF)" which was piloted in the Igunga district in 1996 and later introduced in other districts across the country as a voluntary scheme for rural households and their dependents. This scheme was established under the 2001 act (Maluka & Bukagile, 2014; The United Republic of Tanzania (URT), 2001). Membership was based on enrollment of not more than six members in the household, contributions were defined by specific councils ranging from 5000Tsh to 15,000Tsh which differ from one council to another. The mandate on how the scheme operates was under local government officers within a specific council. However, beneficiaries were limited to being served at a nearby health facility where registration was done (Kapologwe et al., 2017; Macha et al., 2014).

Despite the establishment of CHF as a pre-payment scheme, the Tanzanians were still far from achieving the enrolment target. Health sector strategic plan three set 30% of the population to be enrolled by 2015 but it was not achieved due to different reasons including limitation of health services at the primary level, poor services at government health facilities, unaffordable premiums, and lack of trust (The United Republic of Tanzania, 2019; the United Republic of Tanzania Ministry of Health and Social Welfare Health, 2015). Following these challenges, the Tanzanian government decided to reform the CHF in 2011 and introduced a new scheme named "Improved Community Health Fund" (iCHF) which was piloted in Dodoma, Shinyanga, and Morogoro regions. The new scheme had a flat annual premium contribution of 30,000Tsh equivalent to 15 USD and by July 2018 iCHF was launched in all Tanzania mainland regions. (Kalolo et al., 2015; The United Republic of Tanzania, 2019). The newly launched iCHF included the expansion of the benefits package of health services to the regional level and financing through contributions from the national government and premiums from households.

Despite all government efforts, enrolment status in the iCHF scheme is still low as only 25 % of the population was enrolled in iCHF by 2018/ 2019 (The United Republic of Tanzania, 2019). Data obtained from the President's Office of Regional Administrative and Local Government (PORALG) showed that in the Manyara region, only 8,914 (2.65%) of households were active members of iCHF by 2019/ 2020 raised the need to assess determinants for the enrolment in the study area. It is important to understand these factors to inform the ongoing efforts to achieve Universal Health Coverage. Therefore, this study aimed to assess determinants of enrolment in the improved community health fund in the Manyara region of Tanzania.

Materials and methods
Study area
The study was conducted in Manyara Region, Tanzania. Administratively, the region has six district councils including Manyara Town Council (TC) and five District Councils (DC) namely Manyara, Mbulu, Simanjioro, Kiteto, and Hanang. However, the study was conducted in two DC namely Babati and Hanang which were randomly selected. The region is also located in the Northern Zone of the United Republic of Tanzania with a total population of 1,425,131. (National Bureau of Statistics (NBS), 2012).

Study design, approach, and population

The study employed a cross-sectional study design with a quantitative approach conducted from January to March 2021. The study population was household members aged 18 years and above. Participants who were not willing to participate, those who were sick or had mental health problems, and those with multiple health insurance were excluded from the study.

Sample size and sampling technique
The sample size was obtained using the following formula $n=z^2p(1-p)/e^2$ assuming n= is a sample size of the study, Z = Z score for 95% confidence level, which is 1.96; p = Prevalence in previous studies (proportion of enrollment to the iCHF among household members in Dodoma region= 19.1%);(Modest et al., 2021) e = tolerable error (set at 5%).
The estimated sample size, n= 237 then 15% was added due to non-response fear and multiplied by a design effect of 1.5   due to the multistage nature of the sampling method as it was used in a previous study (Kapologwe et al., 2017). Therefore, the minimum sample size based on the formula was 410. However, seven household members refused to participate in the study making a total of 403 participants studied with a response rate of 98.3%.
       The multi-stage sampling technique was employed, to select sample units from the targeted population. In the initial stage, a list of all districts in the Manyara region was obtained whereby two districts, Babati and Hanan'g out of six were selected by a simple random sampling technique. In the second stage, two wards were randomly selected from each of the two selected districts using a table of random numbers and obtained a total of four wards. In the third stage, two villages from each selected ward were selected using the same sampling technique and obtained a total of eight villages. From each of the selected villages, all household members aged 18 years and above were eligible for the study. However, only one participant was selected from the households. In the case of households with more than one qualified participant, the head of households was selected assuming they had rich information concerning iCHF. Therefore, from each of the eight selected villages, 50 to 51 participants were selected from the randomly selected households.

Data collection procedure
Data were collected through a structured and semi-structured questionnaire using the face-to-face interview method. Data collection tools were pre-tested to ensure consistency of the variables included in the study and a village used for pretesting was excluded during actual data collection.

Data processing and analysis
The data entry, coding, and cleaning were done using Statistical Package for Social Sciences (SPSS), version 26. Analysis of data was based on the relationship between household members' enrolment status and the determinants for enrolment to the iCHF. Descriptive statistics were used to analyze the socio-demographic characteristics and enrolment status of the iCHF of study participants. Logistic regression analysis was used to determine the influence of the enrolment status of iCHF among study participants. A univariate logistic regression model was first used to examine the association between each of the background characteristics and enrolment to the iCHF among study participants. All statistically significant variables (p-value ≤ 0.05) in univariate analysis were entered into a multivariable logistic regression model to identify the factors associated with the enrolment to the iCHF while accounting for other potential confounders. The results of the model were presented using odds ratios (OR) and a 95% confidence interval. However, all probabilities were two-tailed and independent variables with p values < 0.05 were regarded as significant.

Ethical approval and consent

 This study was approved by The University of Dodoma Institutional Research Review Board (IRB) with Ref.No.MA.84/261/01/103; Permission for this study was approved by the Regional Administrative Secretary (RAS) for the Manyara region with Ref.No.FA.262/347/01/K/64. Written consent was obtained from each participant before data collection.

Results

Characteristics of study participants

This study involved a total of 403 participants aged 18 years and above. Nearly half 173 (42.9%) of the respondents were aged between 30-44 years and females accounted for 260 (64.5%) of the respondents. Regarding marital status, the majority 279 (69.2%) of the respondents were married and more than half 237 (58.8%) were having a secondary level of education. Concerning economical activities, more than half 246 (61%) of respondents were peasants and 245 (60.8%) had an average income of less than 50,000 Tsh. per month. About 230 (57.1%) of participants live within five kilometres of the health facility and 277 (68.7%) were from large family sizes. (Table 1)

Table 1: Characteristics of Study Participants (N=403)

Response Variable	Frequency	Per cent
Age group in years		
18-29	113	28.0
30-44	173	42.9
45-59	98	24.3
>60	19	4.8
Sex		
Male	143	35.5
Female	260	64.5
Marital status		
Not married	124	30.8
Married	279	69.2
Level of Education		
Informal	20	5.0
Primary school	48	11.9
Secondary school	237	58.8
Higher education	98	24.3
Occupation		
Employed	33	8.2
Self-employment	124	30.8
Peasants	246	61.0
The average income per month		
>50,000Tsh	158	39.2
<50,000Tsh	245	60.8
Distance to the health facility		
< 5km	230	57.1
> 5 km	173	42.9
Chronic disease or disability in the household		
Yes	70	17.4
No	333	82.6
Size of family		

Small (1-4)	126	31.3
Large (5-12)	277	68.7

Enrolment status in the improved community health fund

The finding from this study showed that only 157 (39%) participants were enrolled in the iCHF while 246 (61%) were not enrolled among study participants.
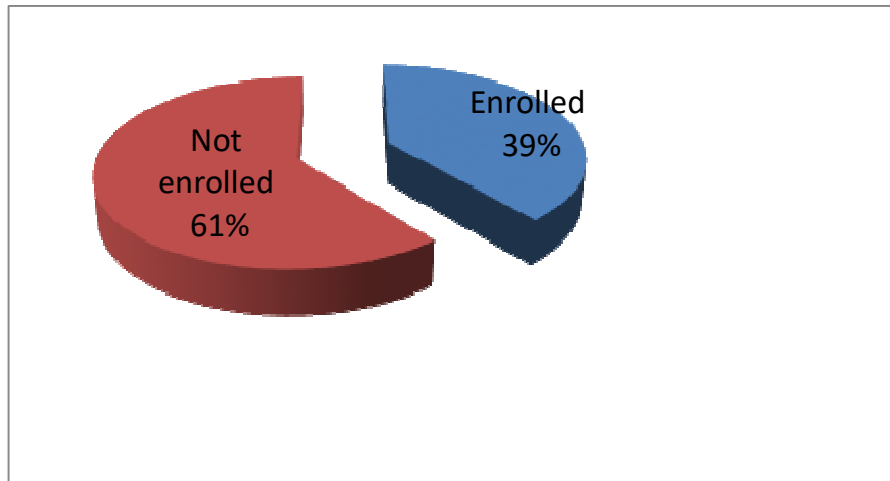

Figure 1: Enrollment status to the iCHF among study participants

Univariate logistic regression model of predictors of enrollment to iCHF

Univariate analysis based on a simple logistic regression model was first used to identify the predictors of enrollment to the iCHF. The results of the model presented in Table 2 indicated that the age of participants, marital status, levels of education, occupation, income, presence of family members with chronic disease or disability, and family size were significantly associated with the iCHF enrollment (p < 0.05). Regarding the age of participants, results have shown that the enrolment in the iCHF was related to the age of the community member. For community members aged between 18 - 29 years and 30-44 years, the odds of enrolment to the iCHF were three times that of community members aged 60 years and above (OR=3.78; p<0.001) and (OR=2.94; p<0.001) respectively. However, the odds of enrolment to the iCHF among married participants were about 2 times significantly greater than that of unmarried participants (OR=1.87; p=0.007). Regarding levels of education, the results revealed that participants with informal education (OR=3.08; p=0.026), primary education (OR=2.20; p= 0.035), and secondary education (OR=2.38; p< 0.001) were significantly more prevalent to enrol to iCHF compared to those with higher education level among study participants.

The occupation status of study participants was another predictor of enrolment to the iCHF, whereby community members involved in peasant activities were having a significantly higher chance of enrolling in the iCHF compared to employed community members (OR=2.53; p=0.03). Compared to participants with an average income of more than 50,000 Tsh (equivalent to 21.53$) per month, those with an average income of less than 50,000 Tsh. were reported to be significantly more likely to enrol in the iCHF (OR=2.14; p<0.001). However, the odds of enrolment to the iCHF among participants with large family sizes were almost three times significantly greater than that of participants with small family sizes (OR=2.71; p<0.001). Regarding family members with chronic disease or disabilities, results showed that participants with a family member(s) with chronic

diseases or disabilities were three times more likely to enrol in the iCHF compared to their counterparts (OR=3.44; p=0.002).

Multivariate logistic regression model for the predictors of enrollment to the iCHF
Further analysis in the multivariate logistic regression model was done and the results showed that accounting for possible confounders the effect of age, level of education, and occupation on the enrolment to the iCHF was no longer significant (p>0.05). On the other hand, marital status, income, chronic disease or disability, family size, and awareness of iCHF remained statistically significant predictors of enrolment to the iCHF (p<0.05). Results showed that the odds of enrolment to the iCHF among married women were about 4 times significantly greater than that of unmarried participants (aOR=3.79; p=0.04). On other hand, participants with an average income of less than 50,000Tsh were three times more likely to enrol in iCHF compared to those with more than 50,000tsh (aOR=3.01; p<0.001).

Participants with a family member with a chronic disease or disability were almost two times (aOR=1.93; p=0.04) more likely to enrol compared to those without disability or chronic disease. However, the odds of enrolment to the iCHF among participants with large family sizes were almost five times significantly greater than that of participants with small family sizes (aOR=4.55; P=0.009). Nevertheless, the odds of enrolment to the iCHF among participants with large family sizes were nearly five times significantly greater than that of participants with small family sizes(aOR=4.55; p=0.009).

Results on awareness of iCHF showed that the odds of enrolment in the iCHF among participants with an awareness of iCHF were almost six times significantly greater than that of their counterparts (aOR=5.89; P<0.0001) as shown in Table 2.

Table 2: Unadjusted   and Adjusted Odds Ratios for the predictors of enrolment to the iCHF

Variables	Univariate OR at 95%CI	p-value	Multivariate aOR at 95%CI	P-value
Age groups(yrs				
18-29	3.78(2.19,6.53)	<0.001	0.87(0.19,3.88)	0.085
30-44	2.94(1.59,5.39)	<0.001	1.34(0.34,5.26)	0.068
45-59	2.28(0.81,6.45)	0.12		
60 and above	Reference		Reference	
Sex				
Male	Reference			
Female	1.01(0.67,1.54)	0.95		
Marital status				
Not married	Reference		Reference	
Married	1.87(1.19,2.95)	0.007	3.79(0.5,1.39)	**0.041**
Level of education				
Informal	3.08(1.15,8.29)	0.026	1.99(0.49,7.96)	0.33
Primary school	2.20(1.06,4.59)	0.035	1.81(0.61,5.37)	0.29
Secondary school	2.38(1.39,4.02)	<0.001	1.68(0.86,3.27)	0.06
Higher education	Reference		Reference	
Occupation status				
Employed	Reference			
Self-employment	1.43(0.59,3.46)	0.42	Reference	0.62
Peasant	2.53(1.10,5.83)	0.03	1.27(0.49,3.31)	
Average income				

>50,000Tsh	Reference		Reference	
<50,000Tsh	2.14(1.42,3.23)	<0.001	3.01(1.84,4.92)	**<0.001**
Chronic disease or disability				
Yes	3.44(0.26,0.74)	0.002	1.93(1.03,3.61)	**0.04**
No	Reference		Reference	
Distance to the health facility				
<5km	Reference			
>5km	0.98(0.66,1.47)	0.94		
Family size				
Small (1-4)	Reference		Reference	
Large (5-12)	2.71(1.69,4.35)	<0.001	4.55(0.25,0.82)	**0.009**
Awareness of iCHF				
Yes	3.18(0.11,0.29)	<0.001	5.89(7.42,10.15)	**<0.0001**
No	Reference		Reference	

DISCUSSION

The current study found that marital status, average household income, chronic disease or disability in the family, and family size influenced the enrolment to the iCHF. It was shown that married participants were more likely to enrol in the insurance scheme compared to their counterparts. In African culture, a married individual indicates maturity and taking care of others in all aspects including health services which take into account having health insurance for them. Therefore, married individuals might be more enrolled due to family responsibilities including reducing health ill-cost. This finding concurred with previous research findings conducted in Tanzania and Pakistan (Sana et al., 2020; Tundui & Macha, 2014) that revealed that marital status was a significant predictor of enrollment in community-based health insurance.

The finding from this study also showed that community members with low income were more likely to enrol in the iCHF than their counterparts. This could be explained that individual with low income has a minimal choice of health services due to limited resources. Individuals with a high income can have wide access and option for other payment mechanisms. A similar finding was observed from the results of studies conducted in India and Afghanistan showed that wealthy people were less likely to join the CBHI as compared to poor individuals (Arun et al., 2012; Habib et al., 2016). However, this result is contrary to the findings of other studies (Adebayo et al., 2015; Eseta et al., 2020; Lee et al., 2018) which revealed that individuals with high income were more likely to enrol in CBHI.

It was also observed from this study that, participants with a family member with a chronic disease or disability were more likely to enrol in the insurance scheme compared to their counterparts. This could be explained that family members of individuals with chronic diseases or disabilities could have experienced out-of-pocket payments as most of them are highly necessitating for health care according to their health condition. This finding was supported by other findings that reported that elderly and chronic disease patients were significantly associated with enrolment to the insurance schemes and retaining their memberships (Nshakira-Rukundo et al., 2019; Nsiah-Boateng et al., 2019).

The current study also showed that large family size was associated with enrollment in the insurance scheme. This could be due to the principle of the scheme itself of family enrolment of six members as one package. However, the risk protection of family health during emergencies as out of

pocket to each individual in the family has a high cost compared to single payments as premium for health insurance. Health expenditure is always unplanned and therefore, without preparation of a pre-payment mechanism can lead to catastrophic expenditure. These results concurred with the finding of previous scholars (Ahmed et al., 2018; Lee et al., 2018; Macha et al., 2014) that reported that participants with large family sizes preferred to enrol in health insurance to reduce the cost compared to small family sizes. However, this practice has an effect on the risk pooling principle of the scheme as those who joined with large family sizes could increase the chance of exhausting all resources from the members within a short time.

It was also observed from this study that community members with awareness of the iCHF were more likely to enrol compared with their counterparts. This finding concurs with the study of previous scholars which showed that awareness of the scheme was a determinant factor for CBHI enrollment among study participants (Belete Fite et al., 2021; Ogben & Ilesanmi, 2018; Taddesse et al., 2020). This could be due to awareness of cost and the importance of a pre-payment mechanism for health care services. However, community members with awareness of the insurance scheme may ask for details of the services and get more understanding of the advantage of the schemes hence influencing their enrollment. This implies that raising community awareness may help influence enrolment and implementation of the scheme.

Conclusion

Generally, enrolment in the improved community health fund in the study area was still low and the predictors for enrolment include marital status, average income per month, family size, awareness of the scheme, and presence of family members with chronic diseases or disabilities. Improved community health funds can be a pathway to universal health coverage through continuous health education on the importance of enrolment in the scheme. Therefore, there is a need for community leaders and healthcare workers to continue with community sensitization and education on the importance of enrolment in the iCHF. However, policymakers and other health stakeholders need to consider identified factors when designing policies and programs aimed to increase enrolment in the health insurance scheme

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