Original article

Willingness to join a village-based health insurance scheme (Iddir) in Dessie town, Ethiopia

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Abstract

Introduction: The total health spending in Ethiopia (both public and private) is still limited and compromises purchase of desired healthcare. There has recently been an increase in interest in health insurance as a promising approach to healthcare financing reform in Ethiopia. Iddirs (indigenous community self-help institutions) appear to have good management practices and are successful in mobilizing communities. This study aimed to estimate the prevalence of the willingness of people in Dessie town, Northeast Ethiopia, to join an iddir-based health insurance scheme, and to identify factors associated with this prevalence.

Methods: A cross-sectional study was conducted from February to March 2016 in Dessie town; 636 participants were recruited during that period. Multi-stage sampling was used to select informants and data were collected using face-to-face interviews. Both bivariable and multivariable logistic regressions were used to model the odds of willingness to participate in iddirs.

Results: The proportion of people who were willing to join an Iiddir-based health insurance scheme was 83.2%. In terms of willingness to join the health insurance scheme, the odds were likely to be significantly higher among those who attended at least primary school education (AOR = 4.91; 95% CI: 2.21-10.8), those who were wealthy (AOR = 3.39; 95% CI: 1.74-6.58), and those whose family size was greater or equal to five (AOR = 3.42; 95% CI: 2.44-5.15). Being single decreases the willingness to join Iddir-based health Insurance scheme (AOR = 0.29; 95% CI: 0.14-0.55).

Conclusion: Iddir association initiated health insurance scheme and considered the possible alternative source of finance for healthcare. The prevalence of willingness to join an iddir-based health insurance scheme was high. Thus, it is recommended to align insurance strategies with the scope of iddirs in order to mobilize the community for sustainable resources generation as an alternative source of finance for healthcare. [*Ethiop. J. Health Dev.* 2018;32(4):249-256]

Key words: Health insurance, Iddir, Insurance, Dessie, Ethiopia

Introduction

Healthcare financing remains a challenge for developing countries, where disease burdens are high mainly because of sub-standard healthcare services, the rising prevalence of both communicable and non-communicable diseases, and scarce resources (1). In resource-limited countries, the scarcity of funds for health is an even more acute problem (2). For example, in 2010, the average total health expenditure in African countries was US$135 per capita. This is very small compared to the average total health expenditure of US$3,150 in high-income countries (3).

The deficiency of finance in the healthcare sector of developing countries is linked to their policies and systems of funding. In the majority of developing nations, over 40% of medical expenditures are covered by households in the form of out-of-pocket payments, which is the most regressive way of subsiding healthcare (3-5). Dependence on such methods of expenditure leads to exorbitantly expensive medical costs for the majority of people, and can result in exacerbating their impoverishment (6,7).

Poor healthcare financing is a major challenge in the health system of Ethiopia (4). Factors contributing to this challenge include low government spending on health, strong reliance on out-of-pocket expenditure, inefficient and inequitable use of resources, and poorly harmonized and unpredictable donor funding (8,9).

The total health payments in Ethiopia are inadequate to purchase good healthcare. The per capita health expenditure in the country was reported to be US$20.77 in 2011, which is short of the WHO's recommendation of US$30-40 needed to cover essential healthcare (1).

In the policy recommendation of 2010/2011, Ethiopia's national health accounts stated that there is a great need to mobilize more resources for health to continue improving healthcare quality, equity, and access to health services. Additionally, the policy stated that Ethiopia needs to explore innovative financing mechanisms to increase domestic finance for health (8).

Because of excellences in management of community affairs, indigenous community self-help institutions (Iddirs) have proven that they can play an effective role in engaging communities to contribute to funding the health system (2,10) and sharing the risks of the costs of healthcare provision. The mechanism has introduced realistic and adjustable frameworks that overcome the

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barriers encountered in financing of the community social service system (10,11).

A study conducted in Benchi Maji Zone in 2013 showed that 78% of respondents wanted to enroll in a community-based health insurance scheme and make a monthly contribution of between 1 and 4 Ethiopian Birr per household. According to studies conducted by De Weerdt *et al.* (12) and Shimeles *et a l.* (13), willingness to join an indigenous health insurance scheme is independently determined by socio-economic and social capital factors. Household income, the head of the household's level of education, and involvement in iddir are all factors in the decision to enroll in iddir-based health insurance schemes. As outlined by Pankhurst, iddirs are funeral associations in Ethiopia that ensure a pay-out in cash and in kind at the time of a funeral for a deceased member of the family of a member of the group (14).

Determining the willingness to join an IBHI scheme is crucial in establishing the feasibility of such a scheme (15). Acceptance within the community and its sustainability should be determined from the outset. Sustainability is determined by the design of the scheme, while acceptability must be tested in community pilots (13). Presenting scenarios is essential to simplify understanding of hypothetical markets such as IBHI, which is new concept in the town of Dessie and in the country as a whole.

Methods

Study setting and period: The study was conducted in Dessie town administration between February and March 2016. Dessie town is 400km northeast of the capital Addis Ababa. Based on the 2007 national census conducted by the Central Statistical Agency of Ethiopia (CSA), the projected total population of the town for 2016 was estimated to be 201,274, of whom 96,837 were men and 104,437 are women. The majority of the inhabitants are Muslim (58.62%), 39.92% are Ethiopian Orthodox Christians and 1.15% are Protestants. The two largest ethnic groups are Amhara (92.83%) and Tigray (4.49%); other ethnic groups make up 2.68%. The economic activities of the people of Dessie town include trade, government civil service, urban agriculture (11). The town has 16 kebeles with a total of 46,808 households (16,17).

Iddirs are created by neighboring households in a village for the purpose of self-help social services, including funeral ceremonies, marriages, labor unions, sanitation programs, combating HIV/AIDS, and healthcare services when people ill (14). Members contribute fees, either monthly or annually. According to data found in the town culture and tourism office, there are 160 iddirs in Dessie.

Study design: A community-based cross-sectional survey.

Sample size and sampling method: The sample size was determined using the single population proportion formula on the basis of the following assumptions: 76.5% of residents of the study site were likely to be willing to join the IBHI scheme (13); 5% margin of error in the estimate of willingness to join the scheme; 95% confidence in the estimate; 15% non-response rate; and a design effect of two. This resulted in the sample size of 636. Multi-stage sampling was employed to recruit study participants. Five out of 16 kebeles were selected using lottery methods. The sample size calculated was allocated to these kebeles using probability proportional to size, where numbers of households were used as a measure of size. The required numbers of households in each of the selected kebeles were drawn by systematic random sampling (interval of k = 32). The first household was identified using simple random sampling from the frame found in health center recorded by health extension workers.

***Data collection tools and techniques*:** A structured and pre-tested questionnaire adapted to the local context was used to collect data through face-to-face interviews. Twelve data collectors who had completed Grade 12 schooling and two nurses serving as supervisors were involved in the field data collection process.

Operational definitions: Perceived quality of the healthcare: the extent of the community's views on the quality of health service delivery and is measured by one item, three-point Likert scale questions.

Household wealth status (index) was computed by using principal component analysis. Wealth was categorized as poor, medium and rich.

Data quality control: To ensure the quality of data, training was provided for both data collectors and supervisors. A pre-test was carried out on 5% of the sample size. The investigators and supervisors closely checked the data collection procedures on the spot. Any questionnaire with a defect was rejected and counted as a non-response.

Data processing and analysis: The data were entered into EPI info version 7 and then transferred to SPSS for analysis. Frequencies, proportions and summary statistics were used to describe the study participants. Both bivariable and multivariable logistic regression were used to model the odds of willingness to participate in IBHI. The degree of association of selected characteristics and the outcome variables were assessed using adjusted odds ratios with corresponding 95% confidence intervals.

Ethical considerations: The study was approved by Ethical Review Board, University of Gondar. Letters of permission, which has been written to Dessie town administration, were taken from the Amhara region health bureau and bureau of workers and social affairs. Written consent was obtained from each respondent. Each study participant was informed about the purpose and anticipated benefits of the research project. Privacy and confidentiality were guaranteed throughout the study.

Results

Socio-demographic characteristics: The majority of the study respondents was from the Amhara ethnic group (90.9%) and married (75.45%). The mean family size was 4.49 (SD = 1.48) and more than 28% of participants had attended secondary or further education (Table 1).

Table 1: **Socio-demographic characteristics of the respondents in Dessie town administration**

Variables	Number	%
Sex		
Female	326	53.7
Male	281	46.3
Age		
< 37 years	301	49.6
≥ 37 years	306	50.4
Ethnicity		
Amhara	552	90.9
Tigray	31	5.1
Oromo	24	4.0
Religion		
Orthodox	318	52.4
Muslim	267	44.0
Protestant	22	3.6
Marital status		
Married	458	75.45
Single	109	17.95
Other*	40	6.6
Education		
No education	144	23.7
Primary education	132	21.7
Secondary education	174	28.7
Tertiary education	157	25.9
Occupation		
Housewife	258	44.5
Daily laborer	64	10.5
Merchant	183	30.1
Government employee	60	9.9
Other*	42	6.9
Wealth status		
Poor	203	33.4
Middle	245	40.4
Rich	159	26.2

*farmer, unemployed

Health and health-related characteristics: Fifty (8.2%) of the respondents had at least one member of their family with chronic disease; and 136 (22.4%) of the respondents had at least one member of their family who had an illness three months prior to data collection. Among the ill, 129 (95.8%) received treatment. The remaining seven did not get treatment because of a lack of money to pay for it. Of the 129 who received treatment, 60 (46.5%) preferred to go to a private health facility. One hundred and nineteen (92.2%) of the respondents covered direct medical expenses out-of-pocket. One hundred and twenty (93%) of the respondents reported that it was difficult to cover payments for treatments; and 41 (31.8%) had borrowed money to cover the cost of healthcare services (Table 2).

Willingness to join an IBHI scheme: The proportion of those who were willing to join an IBHI scheme was 83.2% (95% CI: 79.9-86.2). Two hundred and fifty nine of the respondents (51.4%) wanted to join the scheme to give them security and peace of mind in times of ill health. One hundred and two of the respondents were unenthusiastic about paying the membership contribution for IBHI. Nearly 35% of iddir members participated in more than one iddir. Members' median monthly contribution to IBHI was US$0.51 (Inter quartile range (IQR): 0.46-0.93). Just 68.2% of members were willing to increase their monthly contribution (Table 3).

Table 2: **Health-related features of the respondents in Dessie town administration**

Variables	Frequency	%
Chronic illness		
Yes	50	8.2
No	557	91.8
Illness in previous 3 months		
Yes	136	22.4
No	471	77.6
Episodes of illness (n = 136)		
1-2 episodes	117	86.0
More than 2 episodes	19	14.0
Episodes of illness (n=136)		
Received medical treatment	129	94.8
Not received medical treatment	7	05.2
Place of treatment (n = 129)		
Private clinic	60	46.5
Health center	45	34.9
Hospital	24	18.6
Reasons for going to health facility (n = 129)		
Not expensive	33	25.5
Not too crowded	21	16.3
Service was effective	34	26.4
Reasons for not going to health facility (n = 7)		
No enough money	5	71.4
Others	2	28.6
Who pays (n=129)		
Self	119	92.2
Others	10	7.8
Level of satisfaction with the service provided (n = 129)		
Dissatisfied	45	34.9
Neutral	38	29.5
Satisfied	46	35.6
Perceived quality of healthcare (n = 129)		
Low	64	49.7
Neutral	15	11.6
High	50	38.7
Ability to cover healthcare costs (n = 129)		
Difficult	120	93
Not difficult	9	7
Borrowed money for treatment		
Yes	41	31.8
No	88	68.2
Nearest health institution (n=607)		
Health center	313	51.6
Private clinic	194	32.0
Hospital	100	16.5
Information about insurance (n=607)		
Yes	386	63.6
No	221	36.4
Source of information (n=386)		
Neighbors	17	4.4
Radio/TV	355	92
Others	14	3.6

Table 3: **Willingness of respondents to participate in an IBHI scheme**

Variables	Frequency	%
Willing to join an IBHI scheme (n=607)		
Yes	505	83.2
No	102	16.8
Reasons for wanting to join an IBHI scheme (n=505)		
Provides free access to healthcare	212	42
To help others	34	6.7
Security and peace of mind	259	51.4
Reasons for not wanting to join an IBHI scheme (n=102)		
No enough money to pay	48	47.0
Confused about scheme	16	15.7
Paying out-of-pocket is better	28	27.5
Others	10	9.8
Frequency of payment (n=505)		
Monthly	312	61.8
Annually	151	30
Others	42	8.2
Participation in iddirs (n=607)		
Only one iddir	390	64.3
More than one iddir	217	35.7
Willing to increase contribution for medical costs (n=607)		
Yes	414	68.2
No	193	31.8
Practice of households to assist sick member in iddirs (n=607)		
Yes	29	4.8
No	578	95.2
Type of assistance provided (n=29)		
Loan to be paid later for borrowers	18	62.1
Aid*	11	37.9
Reasons for supporting sick member (n=29)		
Poor financial position during illness	16	55.2
A number of ill persons found in household	9	31.0
Many people proposed to be supported	4	13.8

***Aid=** *Gifts, non-returnable supports (non-repaid back)*

Factors associated with willingness to join an IBHI scheme: After adjustment for possible confounders, some variables remained in the multivariable model: study subjects whose family size was greater or equal to five were 3.42 folds more likely to have willingness to join IBHI (AOR = 3.42; 95% CI: 2.44- 5.15); participants who had completed tertiary education were 4.91 times more likely to be willing to join an IBHI scheme compared to those with no education (AOR = 4.91; 95% CI: 2.21-10.88); members who were unmarried were 71% (AOR = 0.29; 95% CI: 0.14-0.55) less likely to be willing to join compared to those who were married; and respondents whose wealth status was 'rich' were 3.39 times (AOR= 3.39; 95% CI: 1.74-6.58) more likely to join a scheme compared to respondents who were 'poor' (Table 4).

Table 4: **Factors associated with willingness to join an IBHI scheme**

Variables	Willing to join scheme		COR (95% CI)	AOR (95% CI)
	Yes	No		
Marital status*				
Married	396	62	1	1
Single	75	34	0.322 (0.16-0.52)*	0.29 (0.14-0.55)*
Others**	34	6	1.419 (0.88-4.53)	3.12 (0.67-9.91)
Educational status*				
No formal education	108	36	1	1
Primary education	113	19	1.98 (1.07-3.66)*	2.30 (1.08-4.86)*
Secondary education	150	24	2.08 (1.17-3.69)*	3.21 (1.575-6.57)*
Tertiary education	134	23	1.94 (1.08-3.47)*	4.91 (2.21-0.88)*
Ethnicity				
Amhara	458	94	1	1
Tigray	25	6	0.85 (0.34-2.14)	1.32(0.39-4.39)
Oromo	22	2	2.25 (0.52-9.76)	4.61 (0.76-27.95)
Family size*				
< 5	84	103	1	1
≥5	289	131	2.71 (2.1-4.36)*	3.42(2.44- 5.15)*
Wealth status*				
Poor	153	50	1	1
Medium	172	30	1.87 (1.13-3.09)*	2.18 (1.17-4.06)*
Rich	180	22	2.67 (1.54-4.61)*	3.38 (1.74-6.58)*

* Statistically significant at P<0.05; ** others = widowers, divorced

Discussion

In the current study, respondents willingness to join an IBHI scheme was comparable with previous studies (18,19) and higher when compared to other Ethiopian studies (13,20,21), as well as a study in Edo state, Nigeria (22). The probable explanation for this similarity in the high proportions of people who are willing to join an IBHI scheme might be due to the existence of indigenous and inheritable social cooperation among Ethiopian communities, which binds them at the time of unforeseen conditions, and it have been practiced for period of years. However, the discrepancy in the proportion of willingness to join IBHI in the current study and other Ethiopian studies as well as study in Nigeria could be due to differences in when the studies were undertaken, the population distributions, and the study areas (the current study was conducted in an urban setting only). Though they are strict about keeping traditional and cultural values, most rural communities in Ethiopia were lack of generating regular monthly income more than what the urban one did and therefore failed willing to pay contributions for IBHI. Additionally, compared to Nigerian community and their culture, some cultural values and beliefs in the area where this study was conducted is in favor of iddirs, as an alternative community-directed risk-sharing enterprise, whereas, in sparsely populated localities (Benchi Maji), membership of iddirs is limited and coordination is ineffective because of geographic barriers.

The proportion of respondents in the current study who were willing to join an IBHI scheme is lower than the findings reported from a previous study conducted in other communities in Ethiopia (20). This might be due to differences in the socio-demographic situations of the source populations, the social capital practices, and the areas (urban versus rural) where the studies were undertaken (12). In rural Ethiopia, access to alternative health insurance institutions is very low and people are more likely to join such schemes when they are offered to do so. It was also attributed to the existing differences of economic and educational background among rural versus urban residents. In urban, people could be more knowledgeable to make enrolment decisions to any insurance scheme. They have also extra money to pay for membership in an IBHI and their willingness to join is increased. (14, 18). In addition, the family density of rural communities was high and their social obligations were increased because of larger family size (6,23). To secure their social obligations in relation to weddings, funeral ceremonies and in farming duties, households necessarily join community self-help institutions. In other words, a high proportion of engagement in iddirs might be attributed to strengthening friendships/ social bonds, pooling of risk and mutual help.

The current study shows that family size is an independent predictor of willingness to join an IBHI scheme. This could partly be explained by the huge financial burden faced by households when they seek healthcare services (20,21).

In the study, respondents at the tertiary educational level were more likely to be willing to join an IBHI scheme, a finding that is mirrored in previous studies (14,,22). Education has a pervasive impact on willingness to join IBHI schemes, since it provides a better understanding of the benefits of being insured and for that reason; it enhances insurance enrolment decision made by individuals.

According to state-dependent utility theory, consumers' utility level and tastes are influenced by their states, such as economic status (24). Accordingly, differences in economic status lead to different insurance decisions. For example, households with a

higher economic status are in a good position to afford contributions. The current study demonstrates that the richest families were more likely to be willing to pay for insurance compared to poorer families, a finding which is in agreement with a study conducted in India (25).

Consistent with existing literature (21), marital status in the current study was independently associated with willingness to join an IBHI scheme. This can be explained by the fact that following the process of establishing families, people begin to exercise their social responsibilities more than unmarried people do – attending weddings and funeral ceremonies – such that they join iddirs, although it must be acknowledged that unmarried people are also active members of many iddirs (26).

In the current study, health-related variables failed to show significant associations with willingness to join an IBHI scheme. This might be due to the nature of the proposed scheme. Hence, the problem of adverse selection may not be a serious concern in such a scheme.

Conclusion:

Iddir association increased initiation of health insurance scheme and considered the possible alternative source of finance for healthcare. The prevalence of willingness to join in IBHI was high. In order to mobilize the community to generate sustainable resources and produce an alternative source of finance for healthcare, it is recommended that insurance strategies should be aligned with iddirs in comparable towns found in Ethiopia. The richest households, those with larger family sizes, those who were educated and those who were married were independently determining willingness to join the schemes and should be given much emphasis while initiating, expanding and promoting suck kind of scheme in similar settings of Ethiopia.

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Availability of data and material: All data and materials related to this article are available for review on request.

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