

Research Article

Willingness to Pay Community Based Health Insurance and its Associated Factors in North Mecha District, Northwest Ethiopia

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Abstract

Background: The low-income countries and the government of low-income countries faced the challenge to reducing regressive burden of out of pocket expenditure by increasing pre-payment systems that spread financial risk and reduce catastrophic healthcare expenditure.

Methods: Community based cross-sectional study design was employed. The data were collected by trained data collectors and pre-tested structured questionnaire was used. Binary logistic regression model was used to identify the significant association between the dependent and independent variables at p-value <0.05 and AOR values with 95% CI.

Results: The study discovered that 285 households participated and filled the questionnaires with the response rate of 96.3%. Of those, 89.8% respondents were willing to pay and 88.1% them willing to join voluntary. Factors were associated with willingness to pay in CBHI : households join CBHI voluntary, (AOR=0.160; 95% CI, (0.062-0.412)), enrolling CBHI have advantage (AOR=0.89; 95% CI, (0.019-0.410)), distance home to HF took <60 minutes (AOR=7.504; 95% CI, (2.566-21.941)), CBHI offering premium affordable (AOR=0.251; 95% CI, (0.103-0.610)) and urban residence (AOR=0.299; 95% CI, (0.065-0.370)).

Conclusions: The study indicated that, high percentage of willing to pay. But health facilities provide low offerings in CBHI system and now not fulfill the desires of family treatment. For instance, the study revealed that, absence of available medicinal drug, lack of sufficient laboratory equipment, shortage of ambulance offerings, poor services delivery and health professional's behaviors have been the principle challenges to use CBHI services in government health organization. Therefore, Mecha district community based health insurance coordinator office should be scale up health services in the scheme.

Keywords: CBHI; Willingness to pay; Households; Mecha; Northwest Ethiopia

Abbreviations

CBHI: Community Based Health Insurance; AOR: Adjusted Odds Ratio; CI: Confidence Interval; HH: House Hold; COR: Crude Odds Ratio; HF: Health Facility; WTP: Willingness To Pay; OOP: Out Of Pocket; SPSS: Statistical Package of Social Sciences

Introduction

Globally, greater than 800 million human beings spend at the least 10% of their family finances to pay for health services, and approximately a hundred million come to be indigent each and every year due to the fact of excessive OOP health payments [1]. Every year, over 150 million individuals in 44 million households face financial disaster as direct outcomes of having to pay for health care. This coverage brief outlines the occasions during which this happens, and what policymakers want to reflect on consideration on in searching for to protect populations [2].

Community Health Insurance (CBHI) is a non-profit health insurance plan used through the poor human beings protect themselves from the financial risks of disease. In CBHI schemes, members pay small premiums into a collective fund, which they later use to pay for health costs if they require services. Based on the standards of mutual aid and social solidarity, many CBHI schemes are designed for people that live and work in the rural and informal sectors who are unable to get enough public, private, or employer-sponsored health insurance [3].

The health structures of Ethiopia organized into 3 stage of delivery system: degree one is district health buildings made from a wide variety one clinic it covers from 60,000-100,000 population, health centers from 15,000-25,000 population and their satellite health posts from 3,000-5000 population linked each one of a kind by means of a referral system. Level is a general clinic covers 1 million to 1.5 million human beings and stage 3 is a specialised clinic covers from 3 million to 3.5 million human beings [4]. For instance, in Ethiopia, the 2011/12, whole and per capita OOP health spending have been about birr 10.4 billion (US\$590 million) and birr 132 (US\$7.493), respectively [5].

According to the World Bank, the out-of-pocket health expenditure in Ethiopia (i.e., the proportion of whole health expenditure that is paid privately by men and women and households) used to be measured at 79.87% in 2011 (<http://data.worldbank.org>). This figure is higher than the 62.2 % in Sub Saharan Africa for the duration of the same period (<http://data.worldbank.org>) [6].

Health-care financing in Ethiopia, low government spending, strong dependent on out-of-pocket expenditure, inefficient and inequitable utilization of resources, poorly harmonized and

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unpredictable donor funding over the years [6]. The Ethiopian health system is characterized by high out-of-pocket costs, increased health care needs, a lack of ability to mobilize more sources for health among rural populations, and an inability to recoup the full fees of care incurred through beneficiaries [7]. The reliance on this payment mechanism creates financial barriers to having access to health services and put humans at risk of impoverishment [8].

In the 2016 Ethiopian Demographic and Health Survey indicated that, the overall, 95% of women and 94% of men age 15-49 are not covered by means of any type of health insurance. Less than 1% each of women and men are covered by social security insurance, and much less than 1% of women and men have employer-based insurance plan coverage. Mutual Health Organisation/community-based insurance covers 4% of women and 5% of men [9]. The aims study was to assess willingness to pay for community based health insurance and its associated factors among household heads in Mecha District, Northwest, and Ethiopia.

Significant of the study

This study would be necessary for different stakeholders addressing the issues associated to community based health insurance services. Findings from the study would provide data for the policy makers to boost strategies and standards to decrease out pocket expenditure of the community for health care as a necessary intervention in addressing the problems health service utilization in government health center. The findings helps to CBHI organization and other similar organizations to presenting a better diagnose and enhance the customer pleasure on pay and obtained clinical offerings in the scheme. The study would serve as a reference for other researchers who favor to do similarly investigations.

The reason motivates to conduct this research in Mecha district. I was once seen some problems/gaps between government health facility, health services carriers and CBHI member clients. The Clients renewed household identification timely; however they did not get health care services properly. Because primary health care utilizers in government health center self-sponsored/OOP paid persons instead than the member of the scheme .Most of the time the customer bought medical services outside the government health center.

Methods and Materials

Study area

The study was carried out in Mecha District of Amhara region, West Gojjam Northwest Ethiopia. Amhara region is the second most populous region in Ethiopia. From the total population of Amhara region, 346,283 are stay in Mecha District. The district is located 529 km a ways from Addis Ababa and 34.2 km Bahir Dar. Mecha district have 33 rural and 3 urban kebeles.

Research design and data source

Community based cross-sectional study design was employed. Pretested structured questionnaire with closed ended questions was once used to collect information from household's heads. Both primary and secondary data sources were used. To gain the study objective, primary data sources have been used to acquire information through questionnaire. Moreover, secondary statistics sources had been obtained from different published and unpublished materials via assessment different articles to support primary data.

Source and study population

The sources' population for the study was all households found in

Mecha District and the study participants were recruited by employing probability sampling from CBHI member households.

Inclusion and exclusion criteria

The inclusion criteria of the study were households heads only the members of CBHI scheme, while the exclusion criteria, household head who weren't the member of CBHI scheme.

Sample size and sampling techniques

The sample size resolve using single proportion formula, with the assumptions of fifty margin of error and 95% CI; $Z_{\alpha/2}$ =Critical value=1.96, taking $P=77.8\%=0.778$ was carried out in Bugna district, Northeast, Ethiopia [10], and 10% non-response rate. Where, n =required sample size $n=((z_{\alpha/2})^2 p(1-p))/d^2$ [11]. This is the formula to determine the sample size $n=((1.96/2)(\sqrt{2}) 0.778(1-0.778))/0.05^2 =265+(265 \times 0.1)=296$. Probability sampling technique was employed to pick study subjects and probability proportionate allocation was accustomed determines the sample of every selected kebeles. Among probability sampling technique simple random and systematic sampling was used. The primary stage, from the whole thirty-six kebeles in district, while ten kebeles were selected using simple sampling techniques. Within the second stage, by using systematic sampling, the list of household heads were obtained from community health system at health facility. Finally, the study participants were selected using simple sampling.

Data collection procedure

Structured questionnaire was adopted or brought from different literature related to CBHI issues. The questionnaire was first prepared in English and then translated to Amharic (local language). The questionnaires were prepared based on independent variables. Both open ended and close ended questionnaire was develop when prepared questions. Six trained data collectors, BSC degree holder nurses, who are not working in the health centers, two diploma holder health extension workers and one BA degree holder in population studies who working contract in statistics and two university lecturer supervisors were involved in data collection process. The data was collected through home to home. Data collectors were managed by supervisors.

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Study variables

- The study variables: Dependent and independent variables
- Dependent variables: Willingness of households to pay CBHI
- Independent variables: Socio-economic, demographic and health related factors

The dependent and independent variables were they measured by dichotomous methods Yes/or No and Likert scale measurement: Household head interviews were carried out, using semi-structured questionnaire. The scale measurement would be employed to measure the perception and satisfactions of households regarding CBHI premium and services utilization. Five point Likert with three questions related perception and three questions to satisfactions were performed, such as, strongly disagree, disagree, neutral, agree and strongly agree. Together, the three all items produced a minimum score of 5 and maximum score of 15.

Data quality control

To control data quality accurately, intensive training was provided one day about the aims of the study, procedures and data collection techniques. Pretest was done 5% of the total sample size on household heads outside study area. The collected data was reviewed, checked for completeness by supervisor's manually each day before enter to SPSS. After this, data entering, editing, cleaning and analysis was done using SPSS version 22.

Statistical analysis

SPSS software was used to analysis collected data. The strength of association was measured using crude and adjusted odds ratios, with 95% CI, to measure statistical significance at p-value <0.05. Binary logistic regression model was employed to control the effect of each independent variable on dependent variable. The collected data was analyzed using chi-square test and binary logistic regression. The general form of logistic regression model is:

$$\ln \left[\frac{P_i}{1 - P_i} \right] = B_0 + B_1 X_{i1} + B_2 X_{i2} + \dots + B_k X_{ik}$$

Where:

P_i: is the probability of experiencing willingness to pay CBHI for ith respondents.

B_i: is the parameter coefficient, B₀ is a constant and X is the value of an independent variable Binary logistic regression is a form of regression, which is used to when the dependent variable is dichotomous and the independent variables are any type. The dependent variable for this study, willingness to pay CBHI, is binary or dichotomous variable (with two outcomes). The value label of the variable is "1" if the respondent ever had willingness to pay CBHI and "2" if the respondent never had willingness to pay CBHI in the study area.

Operational definition

- Willingness to pay: is the willingness of household heads to pay the proposed CBHI regardless of the amount of payment.
- Insurance: is a contract that protects the insured from out of pocket payment.
- Health insurance: is insurance against the risk of incurring medical expenses among individuals and families.
- Community based health insurance: is an insurance scheme arranged for informal sector, managed and operated by governmental structure that provides risk pooling to cover all or part of the costs of health care services.

Results

Socio demographic characteristics of participants

Among a total of 296 invited to participate, 285 completed interview with the responses rate of 96.3%. The major number of participants, 252 (88.4%) were males. Large proportion of age group found 29-39 which was 109 (38.2%). Among total study participant's 231 (81.1%) were rural. About 246 (86.3%) and 254 (89%) respondents were orthodox and married respectively. With regard to educational statue, 126 (44.2%), 85 (29.4%) and 74 (26.4%) were illiterate, read and write, completed primary school and above respectively. While, 173 (60.7%) were farmer and 112 (39.3%) were labour, government employee, housewife and merchants. The mean average monthly income of family was 35.67 US dollar and family size of household, 1-3, 4-6, 7 and above were (47.7%), (41.4%), and (10.9%), respectively (Table 1).

The levels of WTPCBHI: The great number of respondent's, 256 (89.8%) have been willing to pay. Around 16 (5.6%) and 13 (4.6%) of respondents stated that, oop is better to get effective treatments and governments not cover all needed offerings respectively. The large number of respondents 200 (70.2%) have been CBHI premium is affordable and 85 (29.8%) have been not.

Health status and health care utilization characteristics of respondents

About 44 (15.4%), 72 (25.3%), 102 (35.8%) and 67 (23.5%) respondents have been commenced enrolling in CBHI earlier than one year, two years, three years and have been 4 year in the past respectively. A large number of respondents, 251 (88.1%) have been joined CBHI voluntary, even as 34 (11.9%) have been mandatory. More than half of respondents, 266 (93.3%) have been enrolling in CBHI have advantages. While, the advantages have been as follows, 231 (86.8%), 22 (8.3%), 22 (8.3%), 6 (2.3%) and 7 (2.6%) have been decreased OOP expenditure, enhance health status, lessen threat of severity and foster productiveness respectively. Respondents covering medical cost before join CBHI from OOP, borrowing, convey from Ikub and idir 264 (92.6%), 14 (4.9%) and 7 (2.6%) respectively.

The large number of respondents 256 (89.2%) have been renew identity notification number timely, at the same time as the registration and renewal cost was covered by self-sponsored. The majority of respondents, 228 (80%) have been sick at some point of the past twelve months and acquired treatment from non-public health center which was 106 (46.5%). Regarding to distance, 197 (86.4%) respondents have been took >60 mins from household home to health facility. Among, 285 respondents, 123 (43.2%) have been CBHI package fulfill the desires of household treatment and 207 (72.6%) have been health facility provided proper offerings. The perceived quality of health care service in Mecha District was low. The important challenges to use health offerings in government health institution was 65 (34.2%) stated that absence of available medicine, 62 (32.7%) poor carrier delivery, 50 (26.3%) lack of sufficient laboratory equipment, 8 (4.2%) health experts do not have proper conduct and 5 (2.6%) shortage of ambulance services.

Perception and satisfaction of households towards join and pay for CBHI

The principal number of respondents, 113 (39.6%) had been consider only the poor human beings join CBHI scheme and 175 (61.4%) had been happy the current premium to CBHI services. The study indicated that, 101 (35.4%) respondents had been agree with health expert devoted to enhance the health status of target population and 103 (36.1%) had been neutral. To decide the general stage of

Table 1: Demography and Socio-Economic Characteristics of Households in Mecha District, Northwest, Ethiopia.

	Variables	Frequency (N)	Percentage (%)
Sex	Male	252	88.4
	Female	33	11.6
Age	18-28	31	10.9
	29-39	109	38.2
	40-49	97	34.1
	50 and above 50	48	16.8
Place of residence	Rural	231	81.1
	Urban	54	18.9
Religion	Orthodox	246	86.3
	Others	39	13.7
Marital status	Single	15	5
	Married	254	89
	Widower/Widow	10	3
	Divorced	6	3
Educational status	Illiterate	126	44.2
	Read and write	85	29.4
	Primary school & above	74	26.4
Occupational status	Farming	173	60.7
	House wife	22	7.7
	Government employee	15	5.3
	Laborer	35	12.3
	Merchants	40	14
Monthly average income of family	6.45 -43.03\$	212	74.4
	43.06-86.07\$	54	18.9
	86.09-193.67\$	19	6.7
Family members	44621	136	47.7
	44716	118	41.4
	7& above	31	10.9

Filed survey, 2021

perceptions on CBHI scheme, internal consistency (Cronbach's alpha) becomes first calculated for the scale items measuring perceptions: the items had Cronbach's alpha of 0.414. The mean attitude was 7.95 ± 2.297 (range 3-15).

Among study participants, 101 (35.4%) have been much less satisfied and 14 (4.9%) have been very satisfied on health care offerings in CBHI schemes. From 285 study participants, 177 (62.1%) have been satisfied on willingness to pay and 14 (4.9%) have been very high satisfied on laboratory services. The overall prevalence of satisfaction on CBHI scheme, internal consistency was first calculated for the scale items measuring satisfaction: the items had a Cronbach's alpha of 0.697. The mean attitude was 8.32 ± 2.298 (range 3-15) (Table 2).

Independent predictors of willingness to pay CBHI

In bivariate analysis; residence (COR, 0.235; 95% CI, 0.105-0.525), religious (COR=0.243; 95% CI, 0.103-0.572), educational status illiterate (COR=0.350; 95% CI, 0.136-0.902), premium affordable (COR=0.183; 95% CI, 0.081-0.413), be a part of in CBHI (COR=0.110; 95% CI, 0.047-0.259), enrolling CBHI have advantage (COR=0.090; 95% CI, 0.033-0.248), distance (COR=4.923; 95% CI, 1.845-13.139), CBHI package fulfill the desires of HH treatment (COR=0.384; 95% CI, 0.158-0.931), CBHI health centers supplied desirable service (COR=0.419; 95% CI, 0.191-0.917), and the overall CBHI services (COR=3.447; 95% CI, 1.164-10.212), had been recognized as candidate variables at (p-value <0.25) and this considered to enter multivariate analysis. In multivariate analysis, residence (AOR=0.299; 95% CI, 0.065-0.370), premium affordable (AOR=0.251; 95% CI, 0.103-0.610), be a part of CBHI voluntary (AOR=0.160; 95% CI, 0.062-0.412), enrolling CBHI have advantage (AOR, 0.089; 95% CI, 0.019-0.410), and distance, (AOR=7.504; 95% CI, 2.566-21.941) had been significantly associated with willingness to pay a CBHI at P-value (<0.05). Enter technique was perform to model fit (Table 3).

Discussions

The study aimed to assess willingness of household to pay CBHI and its associated factors. The major number of respondents, 89.8% had been willing to pay CBHI. The findings is in line with the study conducted in Jimma Zone, South west Ethiopia, 90% [12]. While, higher than the study was done in Oromiya region, 83.9% and North central Nigeria, 87% [13,14]. The result revealed that, the mean amount of money willing to pay CBHI become 7.18\$ (± 142.608) per household per annual and median amount was 6.02 US dollar. This finding greater than the study was carried out the rural community of Fogera District, 4.02\$ (+21) per household per annual and the median quantity was 4.30\$ [15]. This distinction is probably socio economic status of household heads, study site, knowledge and awareness distinction about at country and region level. In addition to this, it is probably accessibility, affordability and availability of health care offerings difference.

Rural residence is significantly related toward willing to pay. The findings indicated that, households had been rural residence much less likely willing to pay than as compared to those who stay in urban dweller (AOR=0.299; 95% CI, 0.065-0.370). This is probably distance, income and knowledge of scheme urban households better than rural. In addition to this, it is probably rural households more join in CBHI and socio-economic status much less than urban community. Premium affordable is significantly and had positive relationships towards willingness to pay. Respondent found out that, CBHI offerings premium affordable was more likely willing to pay than as compared to those who had been not premium affordable (AOR=0.251; 95% CI, 0.103-0.610). This is probably, respondent's premium affordable had been more utilize CBHI than not affordable.

Households join CBHI voluntary is significant and had positive relationships closer to willing to pay. Households join in CBHI voluntary was much more likely willing to pay than as compared to

Table 2: The Levels, Perception and Satisfaction of Households to Pay CBHI in Mecha District, Northwest, Ethiopia.

Variables	Response	Frequency (N)	Percentage (%)
Willingness to pay for CBHI	Yes	256	89.8
	No	29	10.2
Reasons not willing to pay	OOP payment is better	16	5.6
	Not cover all needed services	13	4.6
CBHI premium is affordable	Yes	200	70.2
	No	85	29.8
Only poor people join CBHI scheme	Strongly agree	29	10.2
	Agree	113	39.6
	Neutral	32	11.2
	Dis agree	61	21.5
	Strongly dis agree	50	17.5
Happiness of current premium to CBHI services	Strongly agree	42	14.7
	Agree	175	61.4
	Neutral	11	3.9
	Disagree	45	15.8
Health professional committed to improve health status of target population	Strongly disagree	12	4.2
	Strongly agree	31	10.9
	Agree	101	35.4
	Neutral	103	36.1
	Disagree	35	12.3
Satisfaction of health care use in CBHI scheme	Strongly disagree	15	5.3
	Very high satisfied	16	5.6
	Satisfied	75	26.3
	Neutral	79	27.7
	Low satisfied	101	35.4
Satisfaction of willingness to pay for CBHI services	Very low satisfied	14	4.9
	Very high satisfied	36	12.6
	Satisfied	177	62.1
	Neutral	19	6.7
	Low satisfied	46	16.1
Satisfied with the laboratory services	Very low satisfied	7	2.5
	Very high satisfied	14	4.9
	Satisfied	83	29.1
	Neural	112	39.3
	Low satisfied	67	23.5
	Very low satisfied	9	3.2

Filed survey, 2021

NB 1: Reference Category; COR: Crude Odds Ratio; AOR: Adjusted Odds Ratio; *P-value <0.05; **P-Value<0.01

Table 3: Bivariate and Multivariate analysis of Factors Associated with Willingness of Households to Pay CBHI in Mecha District, Northwest, Ethiopia.

Variables	Willingness to pay CBHI		B	Odds Ratio(OR)	
	Yes	No		COR(95%CI)	AOR(95%CI)
Place of residence					
Rural	215	16	1.449 (-1.207)	0.235(0.105-0.525) **	0.299(0.065-0.370) *
Urban	41	13		1	1
Religious					
Orthodox	227	19	-1.416(-0.129)	0.243(0.103-0.572)**	0.879(0.189-4.087)
Others	29	10		1	1
Educational status					
Illiterate	118	8	-1.049(0.352)	0.350 (0.136 0.902)*	1.422(0.403-5.021)
Read & write	76	9	-0.491(0.275)	0.612(0.242-1.546)	1.317(0.430-4.034)
Primary school& Above	62	12		1	1
CBHI premium is affordable					
Yes	190	10	1.699(1.383)	0.183(0.081-0.413)**	0.251(0.103-0.610) **
No	66	19		1	1
Join in CBHI					
Voluntary	235	16	2.207(1.835)	0.110(0.047-0.259)**	0.160(0.062-0.412)**
Mandatory	21	13		1	1
Enrolling in CBHI have advantage					
Yes	246	20	2.404 (2.422)	0.090(0.033-0.248)**	0.089(0.019-0.410) **
No	10	9		1	1
Distance HH home to reach HF					
<60 minutes	23	8	1.594(2.015)	4.923(1.845-13.139) **	7.504(2.566-21.941)**
>60 minutes	184	13		1	1
CBHI package fulfill the needs of HH treatment					
Yes	116	7	0.957(-0.131)	0.384(0.158-0.931)*	0.877(0.268-2.868)
No	140	22		1	1
CBHI health facilities provided a good service					
Yes	191	16	-0.870(0.102)	0.419(0.191-0.917) *	1.107(0.318-3.849)
No	65	13		1	1
Overall CBHI service level					
Poor	165	25	1.237(0.908)	3.447(1.164-10.212) *	2.480(0.628-9.799)
Good	91	4		1	1

Filed survey, 2021

NB 1: Reference Category; COR: Crude Odds Ratio; AOR: Adjusted Odds Ratio; *P-value <0.05 **; P Value<0.01

sign up for mandatory (AOR=0.160; 95% CI, 0.062-0.412). CBHI have an advantage is significant and had positive relationships to willingness to pay. The study findings indicated that enrolling CBHI have benefit more likely to pay than as compared to did not have advantages (AOR=0.089; 95% CI, 0.019-0.410). This is probably enrolling CBHI scheme have benefit, get quality health offerings with affordable costs in public health centers.

Place of residence is significant and had positive relationships willingness to pay. The findings indicated that, distance from household home to HF took <60>60 minutes (AOR=7.504; 95% CI, 2.566-21.941). This might be, high accessibility of services due to, comfortable road, transport services and get near health center.

Limitations of the study

- Limited on quantitative research means not include qualitative.
- Some study findings not compared other professional study results.
- The study focused only CBH members.

Conclusion

The study result indicated that, high willing to pay and low CBHI package deal to fulfill the needs of HH treatment and measured by dichotomous choice (yes/no). Absence of available medicine, lack of sufficient laboratory equipment, shortage of ambulance services, poor offerings delivery and health professional's conduct was the principle challenges to use CBHI offerings in government health institution. Therefore, Mecha District Health Bureau should communicate with regional and the national health organizations to solve such problems and to improve CBHI offerings.

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Ethics Approval and Consent to Participate

Ethical clearance was obtained from University of Gondar College of Social Sciences and Humanities Institutional Review Board/ Research Ethics Committee. By using IRB/Ethics committee permission letter the verbal consent was obtained from each study participants by informed/explained about the purpose, objective of the study as well as informed about, they have the right to discontinue or refuse to participate in the study. The reason used only verbal, rather than written informed consent, it is difficult to address or provided written consent to 285 sampled study subjects. Confidentiality of information and privacy was absolutely maintained.

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