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Factors Affecting Enrolment in the Community Based Health Insurance Scheme of Chandranigahapur Hospital of Rautahat District

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ABSTRACT

Background: Low income countries face considerable challenges in financing health care for their populations. As its consequences, poor people don't have access to desired health services, drugs and medicine.To address the financial barriers to health services, Government of Nepal introduced Community Based Health Insurance scheme at selected health facilities. However, enrolment in the schemeis very low. This study aims to identify the associated factors affecting enrolment in the insurance scheme.

Methods: A community based case-control study was conducted within the coverage area of CBHI scheme of Chandranigahapur Hospital. CBHI Scheme of Chandranigahapur Hospital was selected purposively. Altogether 416 households were interviewed using a structured questionnaire. The required number of sample size from the enrolled households as cases and equal number of non-enrolled households as controls were selected randomly in 1:1 ratio.

Results: The odds of enrolment in the CBHI scheme among male-headed households were found lower than female-headed households (AOR 0.251, 95% CI 0.097 to 0.652). Similarly household head belonging to upper caste/ethnic groups (AOR 3.981, 95% CI 2.027 to 7.816) as well aseducated household head(AOR 6.184, 95% CI 3.137 to 12.188)were more likely to enrol in the CBHI scheme. Households having >60 years elderly were found significantly associated with enrolment in CBHI scheme(AOR 3.996, 95% CI 2.130 to 7.497). Time to reach health facility as well as affordability of premium of the insurance scheme was also found significantly associated with enrolment in the CBHI scheme.

Conclusions: The enrolment in the CBHI scheme is determined by combination of householdhead, household and health service related factors.These determinants should be addressed to enhance the enrolment in the insurance scheme.

Keywords: Community based health insurance; enrolment; health insurance; social health security.

INTRODUCTION

Low income countries face considerable challenges in financing health care for their populations.[1] In Nepal, around 25.16 percent of people are living under the poverty line.[2] Many poor people don't have access to desired health services. More than 55 percent (USD 9.0) of total health expenditures is financed through out-of-pocket expenditure by households.[3] High out of pocket expenditure has resulted in increased number of people not using the available health services.[4] To address the financial barriers to health services, Government of Nepal introduced provider based health insurance scheme at Dumkauli PHCC and Mangalabare PHCC of Nawalparasi and Morang district respectively as a pilot program for community based health insurance (CBHI) in the year 2003/04. Later in the year 2005/06, CBHI scheme was expanded to four more districts including Chandranigahapur Hospital of Rautahat district. Since the very beginning, CBHI schemes have achieved very limited coverage. Only 3.4 percent of total population is covered within their catchment area which shows the low range of influence of the schemes.[5] Hence this study aims to identify the factors associated with enrolment in CBHI scheme.

METHODS

A community based case-control study was conducted among the two VDCs within the catchment area of

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Insurance scheme of Chandranigahapur Hospital. The study was conducted from June 2013 to December 2013. The sample size was calculated by using Epi-info STATCAL application assuming a two-sided confidence level at 95%, 80% power (1-B) of the study and a case-control ratio of 1:1. Evidences have shown the education level of household head, family size, and distance to the health facility as the major determinants to decide whether to join insurance scheme or not.[6] Hence this study assumed percentage of households with family size more than or equal to 5 discontinuing the insurance scheme at 68.8% with an odds ratio (OR) of 2.03 based on a descriptive cross-sectional study done in insurance scheme of Mangalbare PHCC of Nepal.[7] The sample size was 416 (208 cases and 208 controls) assuming a 10% non-response rate. The required number of samples were collected and entered for the further analysis.

CBHI Scheme at Chandranigahapur Hospital of Rautahat district was selected purposively among the six pilot districts with CBHI schemes implemented by government of Nepal. There were six VDCs within the catchment of the insurance scheme of Chandranigahapur Hospital. From the six catchment VDCs, Chandranigahapur and SantapurVDCs were randomly selected. First, the complete list of households enrolled under the CHBI schemes from the two selected VDCs for FY 2068/69 was obtained from the Chandranigahapur Hospital CBHI management committee. Then updated voter's list was obtained from VDC office to select controls from the same selected VDCs. The required number of sample size from the enrolled households as cases and equal number of non-enrolled households as controls were selected randomly from the same selected VDCs in 1:1 ratio.The cases and controls were matched in 1:1 ratio with socio-demographic characteristic of the household like age, sex, ethnicity of household head and distance to reach CBHI scheme.

The cases were the households enrolled in the CBHI scheme for the given fiscal year while the controls were the households from the same selected VDCs who were not enrolled in the CBHI scheme. Household heads were the respondent for the study.

Principal investigator himself collected the data through face-to-face interviews using a structured questionnaire. Collected data were daily entered into Epi-data version 3.1. The entered data were later exported to SPSS data analysis software for the statistical analysis. First the association between household, household head and health services characteristics with outcome variable i.e. enrolment in CBHI scheme were explored using bivariate logistic regression analysis. Value of $P<0.05$ was considered to be significant where the confidence interval for OR was set at 95% (95% CI). Significant variables observed in bivariate analysis were subsequently included in multivariate analysis to control for possible confounding and to assess the strength of association between enrolment status and household, household head, health services characteristics. The fitness of regression model was tested by Hosmer and Lemeshow test. A multi-collinearity diagnostic test was applied between the independent variables before logistic regression was applied. Decisive criteria were set out to be a tolerance value of <0.1 or variance inflation factor (VIF) value of >10. All the variables were found to be within the criteria and were therefore used for logistic regression. Based on the objectives of the study, a structured questionnaire was prepared. Principle Component Analysis (PCA) was done to measure the wealth quintile of the households.

Ethical approval was obtained from the institutional review board of the Institute of Medicine, Tribhuvan University. Similarly District Health Office (DHO) Rautahat and Chandranigahapur Hospital CBHI Management Committee were informed of the study and approval was obtained. Likewise informed written consent was obtained from the study participants prior to the information collection. Confidentiality of the information provided by the respondents was maintained.

The small sample size is one of the limitations of our study. Besides, this study couldn't cover provider's perspective, as it was focused only on the enrolment decision from user's perspective. Government of Nepal has been implementing social health security program under Health Insurance Board and has planned to scale it up across the country gradually. In this context, the finding of this study will make program planners and implementers aware on the determinants affecting enrolment in the insurance scheme to design appropriate interventions on time.

RESULTS

The study was carried out among 416 households within the coverage of CBHI scheme of Chandranigahapur Hospital. Around 85 percent (n=354) of the respondents were male and majority (n=200, 48.1%) of them belonged to 41-60 years age group category. The median age of the respondents was 44 year with the age range of 23 to 92 year. Table 1 shows the socio-demographic characteristics of the household heads who were the respondents in the study. Bivariate analysis showed that sex, ethnicity and education of the household head were significantly associated with enrolment in the CBHI scheme (Table 2).

Similarly household characteristics like family size, having Under 5 children, having >60 years elderly at home, wealth quintile were found significantly associated with enrolment in CBHI scheme at bivariate analysis (Table 3). Time to reach health facility as well as affordability of premium of the scheme was also found significantly associated with enrolment in the CBHI scheme (Table 4). However, family size, having Under 5 Children and wealth quintile did not show a statistically significant association with enrolment in the CBHI scheme in multivariate analysis (Table 5). Table 5 shows that odds of enrolment in the CBHI scheme among male-headed households were found lower than female-headed households (AOR 0.251, 95% CI 0.097 to 0.652) indicating female-headed households are more likely to enrol in the scheme. Similarly household heads belonging to upper caste/ethnic group (Brahmin/Chhetri/Giri/Puri/Thakuri) were found more likely to enrol in the CBHI scheme (AOR 3.981, 95% CI 2.027 to 7.816) than other caste/ethnic groups. The odds of enrolment in CBHI scheme by an educated household head were 6.184 times higher than uneducated ones (95% CI 3.137 to 12.188). Similarly households having greater than 60 year elderly were 3.996 times more likely to enrol in the insurance scheme (95% CI, 2.130 to 7.497). Affordability of the premium was also found significantly associated with enrolment in the CBHI scheme (AOR 4.674 CI 2.156 to 10.132). Similarly households requiring less than 30 minutes,by any means of transportation, to reach health facilities providing insurance schemes were found more likely to enrol in the CBHI scheme (AOR 20.536, 95% CI 10.783 to 39.110) than those household requiring more than or equal to 30 minutes.

Table 1. Socio demographic characteristics of the household head. (N=416).

Characteristics	Enrolled n=208 (%)	Not Enrolled n=208 (%)	Total N=416 (%)
Sex			
Male	169 (81.2)	185 (88.9)	354 (85.1)
Female	39 (18.8)	23 (11.1)	62 (14.9)
Age			
20-40	74 (35.6)	88 (42.3)	162 (38.9)
41-60	102 (49.0)	98 (47.1)	200 (48.1)
61 and More	32 (15.4)	22 (10.6)	54 (13.0)
Ethnicity			
Dalit	9 (4.3)	11 (5.3)	20 (4.8)
Disadvantaged Janajatis	9 (4.3)	36 (17.3)	45 (10.8)
Disadvantaged Non-Dalit Terai caste groups	18 (8.7)	57 (27.3)	75 (18.0)
Religious minorities/ Relatively Advantaged Janajatis	3 (1.5)	4 (2.0)	7 (1.7)
Brahmin/Chhetri/Giri/Puri/Thakuri	169 (81.2)	100 (48.1)	269 (64.7)
Religion			
Hindu	205 (98.6)	193 (93.3)	398 (95.9)
Non-Hindu	3 (1.4)	15 (6.7)	18 (4.1)
Occupation			
Agriculture	97 (46.6)	97 (46.6)	194 (46.6)
Service	52 (25.0)	23 (11)	75 (18.0)
Business	26 (12.5)	27 (13.1)	53 (12.7)
Other	33 (15.9)	61 (29.3)	94 (22.6)
Education			
Literate	14 (6.7)	2 (1.0)	16 (3.8)
Primary/Secondary/SLC level	140 (67.3)	93 (44.7)	233 (56.0)
Higher secondary and above	26 (12.5)	13 (6.2)	39 (9.4)
Illiterate	28 (13.5)	100 (48.1)	128 (30.8)

Table 2. Association between household head related factors and enrolment in CBHI scheme. (N=416).

Characteristics	Enrolled n=208(%)	Not enrolled n=208(%)	COR	P-value	95% CI
Sex					
Male	169 (18.2)	185 (88.9)	0.539	0.038	(0.309-0.939)
Female	39 (18.8)	23 (11.1)			
Age					
61 and More	32(15.4)	22 (10.6)	1.73	0.086	(0.926-3.231)
41-60	102 (49.0)	98 (47.1)	1.237	0.314	(0.817-1.875)
20-40*	74 (35.6)	88 (42.3)	1		
Ethnicity					
Upper caste/ethnic group**	169 (81.2)	100 (48.1)	4.68	P<0.001	(3.009-7.280)
All others	39 (18.8)	108 (51.9)			
Religion					
Hindu	205 (98.6)	194 (93.3)	4.931	0.011	(1.396-17.425)
All others	3 (1.4)	14 (6.7)			
Occupation					
Agriculture	97 (46.6)	97 (46.6)	1.000	1.000	(0.680-1.470)
All others	111 (53.4)	111 (53.4)			
Education					
Educated	180 (86.5)	108 (51.9)	5.952	P<0.001	(3.675-9.641)
Uneducated	28 (13.5)	100 (48.1)			

*Reference Category ** Brahmin/Chhetri/Giri/Puri/Thakuri as Upper caste/ethnic group

Table 3.Association between household related factors and enrolment in CBHI scheme. (N=416).

Characteristics	Enrolled n=208 (%)	Not enrolled n=208 (%)	COR	P-value	95% CI
Family size					
More than or equal to 5 members	166 (79.8)	138 (66.3)	2.005	0.002	(1.286-3.126)
Less than 5 members	42 (20.2)	70 (33.7)			
<5 children					
Having <5 children	94 (45.2)	66 (31.7)	1.774	0.006	(1.189-2.646)
Not having < 5 children	114 (54.8)	142 (68.3)			
>60 elderly					
Having >60 elderly	101 (48.6)	62 (29.8)	2.223	P<0.001	(1.486-3.325)
Not having >60 elderly	107 (51.4)	146 (70.2)			
Wealth quintile					
Highest quintile	50 (24)	28 (13.5)	6.250	P<0.001	(3.107-12.572)
Forth quintile	46 (22.1)	49 (23.6)	3.286	P<0.001	(1.697-6.361)
Third quintile	52 (25)	30 (14.4)	6.067	P<0.001	(3.042-12.097)
Second quintile	42 (20.2)	38 (18.3)	3.868	P<0.001	(1.953-7.661)
Lowest quintile*	18 (8.7)	63 (30.3)	1		

Table 4. Association between health services related factors and enrolment in CBHI scheme. (N=416).

Characteristics	Enrolled n=208 (%)	Not enrolled n=208 (%)	COR	P-value	95% CI
Time to reach CBHI Scheme					
Less than 30 minutes	174 (83.7)	53 (53)	14.967	P<0.001	(9.243-24.236)
More than or equal to 30 minutes	34 (16.3)	155 (155)			
Affordability of premium					
Affordable	194 (93.3)	113 (113)	11.65	P<0.001	(6.348-21.380)
Unaffordable	14 (6.7)	95 (95)			

Table 5. Factors affecting enrolment in the CBHI scheme.(N =416).

Characteristics	Crude OR (95% CI)	Adjusted OR (95% CI)	P-value
Sex of the household head			
Male	0.539 (0.309-0.939)	0.251 (0.097-0.652)	0.005
Female			
Ethnicity of the household head			
Upper caste/ethnic group	4.680 (3.009-7.280)	3.981 (2.027-7.816)	P<0.001
All others			
Educational status of the household head			
Educated	5.952 (3.675-9.641)	6.184 (3.137-12.188)	P<0.001
Uneducated			
>60 elderly in the household			
Having above 60 elderly	2.223 (1.486-3.325)	3.996 (2.130-7.497)	P<0.001
Not having above 60 elderly			
Affordability of the premium			
Affordable	11.650 (6.348-21.380)	4.674 (2.156-10.132)	P<0.001
Unaffordable			
Time to reach CBHI scheme			
Less than 30 minutes	14.967 (9.243-24.236)	20.536 (10.783-39.110)	P<0.001
More than or equal to 30 minutes			

DISCUSSION

In this study, enrolment in the CBHI scheme was found significantly associated with sex of the household head. Female headed households are more likely to enrol in the CBHI scheme (Table 5). This might be due to the fact that female are more cautious about the health of their family members than male. Previous studies conducted in Ghana had obtained similar results.[6-9] However, this finding contrasts with a study conducted in rural Burkino Faso in Sub-saharan Africa.[6] This study couldn't found any effect of age of the household head for the enrolment in the CBHI scheme which is in line with the result obtained from the study conducted in Burkino Faso.[6,10] It suggests that health is everyone's concern and it can't be stratified with ages. Similarly, the effect of ethnic classes was found evident in this study for the enrolment in the CBHI scheme. It means that people belonging to upper caste/ethnic caste group (Brahmin/Chhetri/Giri/Puri/Thakuri) are more likely to enroll in the insurance schemes than other ethnic groups. It can also be explained by the fact that people belonging to upper caste/ethnic group could have comparatively greater access to information, services and are consequently benefiting more from the CBHI scheme than other ethnic groups. Previous studies conducted in CBHI scheme as well as behavioural models have found the similar effect of ethnicity.[6,10,11] This study couldn't found any association between religion and enrolment in the CBHI scheme. This could be due to nature of insurance scheme where

households can voluntarily enroll in the CBHI scheme irrespective of their religion. Similarly the enrolment in the CBHI scheme was found no longer affected by the occupation of the household head. The scheme has different amount of premium for the enrolment for the poor and rich families. Poor and disadvantaged families can enroll in the scheme by paying the premium under the subsidized scheme which could have undermined the effect of occupation in the enrolment in the CBHI scheme. It is consistent with the findings from the study conducted in Burkina Faso.[6] Educational status of the household head was found significantly associated with the enrolment in the scheme. Previous studies have also depicted that educated people were found to enroll more in health insurance scheme than uneducated people.[6,9-13] It could be due to greater ability of educated people to understand key features of the scheme and analyze its benefit packages and its importance than uneducated people.

This study couldn't establish the effect of family size on the enrolment, although the association was significant at bivariate logistic regression analysis. However a study conducted in Ghana had shown significant relationship between family size and enrolment in the scheme.[9] Similarly, this study couldn't found significant association between households having under five children and their enrolment in the scheme. However the households having above 60 year elderly were found more likely to enrol in the scheme.Previous studies conducted in African regions have shown similar results.[9,14] Understanding as well as experiencing the increased vulnerability to diseases at higher age, it could have propelled them to enrol in the community based health insurance scheme. The effect of wealth quintile was not observed for the enrolment in the CBHI scheme. Minimal price for the enrolment could have encouraged for the people from the different quintile. However, it contrasts with the finding of the similar study conducted in Burkina Faso.[6] Similarly, this study couldn'tfound significant association between morbidity status and enrolment in the insurance scheme. It could be due to limited coverage of the health services within the benefit package of the insurance scheme. As a study conducted in Burkino Faso found that enrolment as well as reenrolmentin the scheme was shaped by health needs and health demands of the community.[14]

The effect of distance or time consumed to reach the health facility was found significantly associated with the enrolment in the health insurance scheme. The finding complements the evidences generated from the similar study conducted in Gujarat, Republic of Congo and Rwanda.[6,11,12] Similarly, the affordability of the premium was found significantly affecting the enrolment in the CBHI scheme which has been demonstrated by the similar studies.[15]

CONCLUSIONS

This study provides evidence that the enrolment in community based health insurance scheme is determined by a combination of household head (sex, ethnicity, education), household (having >60 elderly) and health service (time to reach health facility, affordability of premium) related factors. So, community awareness program targeting especially to male-headed households, disadvantaged by caste/ethnicity and uneducated household heads are needed to address the potential barriers for the enrolment at household level. Similarly, the finding of this study indicates that households having elderly member are more likely to enrol in the insurance scheme. Hence policymakers, program planners and implementers should design risk adjustment mechanism to address the risk of adverse selection in the insurance scheme. Besides, the program planners should consider provision of transportation allowance, subsidies to cover the cost of CBHI premiums for the poor to minimize the effect of distance to health facilities and affordability of premium respectively. Furthermore, there is need for further studies covering large sample sizeto assess the determinants affecting enrolment, renewal and dropout using qualitative and quantitative tools.

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