

Factors Affecting Enrollment in Government Health Insurance Program in Kailali District

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ABSTRACT

Background: Health care financial burden on households is high in Nepal. High health care expenditure is a major obstacle in achieving universal health coverage. The health insurance is expected to reduce healthcare expenditure. However, only small segments of the population are covered by health insurance in Nepal. This study assessed the factors affecting enrollment in government health insurance program in the first piloted district, Kailali, Nepal.

Methods: A cross-sectional survey was conducted among 1048 households located in 26 wards of Kailali district after 21 months of the implementation of social health insurance program, Nepal. The sample was selected in two stages, first stage being the selection of wards and second, being the households.

Results: The higher level of household economic status was associated with increased odds of enrollment in health insurance program (ORs=4.99, 5.04, 5.13, 8.05, for second, third, fourth, and the highest quintile of households, respectively). A higher level of head's education was associated with increased odds of health insurance enrollment (ORs = 1.58, 1.78, 2.36, for primary, secondary, tertiary education, respectively). Presence of chronic illness in the household was positively associated with increased odds of health insurance enrollment (OR= 1.29).

Conclusions: The poor and low educated groups were less benefited by social health insurance program in Kailali district, Nepal. Hence, policymakers should focus to implement income-based premium scheme for ensuring equal access to healthcare. Since household with chronic illness leads to high odds of being enrolled, a compulsory health insurance scheme can make the program financially sustainable.

Keywords: Enrollment; health expenditure; health insurance; inequality; Nepal.

INTRODUCTION

The financial burden of health care is high in Nepal.¹ Out-of-pocket expenditure on healthcare constitutes 55.4% of current health expenditure in Nepal.² High out-of-pocket healthcare expenditure is a major hurdle in achieving universal health coverage, an explicit target of sustainable development goals.³ Health insurance (HI) is a mechanism of reducing the out of pocket health care expenditure.⁴ Moreover, it diversifies financial risk, raises income levels and can offer large welfare gains.⁵ For addressing the financial constraint in health services, the Government of Nepal implemented the social health insurance program (SHIP) in 2016. However, the program has been facing many challenges and only small segments of the population are enrolled in this scheme.^{6,7} Prior to SHIP, Nepal's government had piloted community-based health insurance program (CBHI) which had also low

enrollment (only 3.4%)^{8,9} and there are few published literatures on CBHI in Nepal. This study assessed the determinants of enrollment in SHIP of Government of Nepal in the first piloted district, Kailali, Nepal.

METHODS

A cross-sectional household survey was conducted from January to February 2018 in Kailali district after twenty-one months of the implementation of SHIP in Nepal. Kailali is the district where SHIP was implemented for the first time in Nepal. Approximately 142 thousand households with an average family size of 5.44 live in Kailali district.¹⁰ This district has significantly higher poverty level as compared to the national average (34% versus 24%).¹¹

The sample size was calculated using the United Nations

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(2008) applying multistage cluster sampling. Assuming 50% of the proportion of success of a key indicator, 95% desired level of confidence, 5% margin of error, three as design effect, and 7.5 % as non-response rate, the sample size was 1066 households. 50% is an optimum value for the proportion of success any key indicator. The value of design effect usually ranges from 1.5 to 4.5,¹² so, an average value was assumed. Non-response rate of 5% to 10% is most common for household surveys, especially in developing countries.¹³ Thus, an average value of 5% and 10% was assumed.

The value of the design effect depends on clusters size and intra-class correlation coefficient.¹⁴ Assuming the design effect as three and intra-class correlation coefficient as 0.05, the cluster size was 41. In practice, the value of intra-class correlation coefficient ranges from 0.05 to 0.50.¹⁴ Higher value indicates more similarity within the individuals' characteristic whereas smaller value indicates less similarity. Thus, less similarity has been assumed. Finally, using sample size as 1066 and dividing it by cluster size of 41, the number of clusters or wards were 26.

A two-stage cluster sampling design was employed. First, 26 wards comprising at least ten insured households from a list of wards were selected using the lottery method. The rationale behind selecting only wards comprising at least 10 insured households was similar to the 2017 World Bank study regarding Nepal's SHIP.⁷ Further, since Kailali had less than 5% of insurance enrollment and as the main objective of the study was also to find the effect of SHIP on health care expenditure, so wards with a relatively higher number of enrollments were selected.

Second, 41 households were randomly sampled from each ward across the radius of ward office according to the latest population census of Nepal. In each ward, about 25% (10 or 11) of the insured households were selected. The case-control ratio was approximately 1:3 and the design protocol was approved by Kathmandu University. The information regarding ward level insurance enrollment was obtained from the local office, Social Health Security Development Committee (SHSDC), Kailali district.

An initial version of a structured survey questionnaire was developed based on extensive review of previous related studies and similar surveys conducted in Nepal. The final version of the instrument was prepared after incorporation of comments and suggestions from experts, field testing to the potential respondents, presenting the questionnaire to a group of experts and Ph.D. thesis supervisors, suggestions from concerned ethical bodies

and pilot testing the draft versions.

A face-to-face interview was conducted mainly from household heads after obtaining their written consent. Seven trained enumerators involved in data collection under the direct supervision of the principal researcher. Enumerators were given extensive training and they also had previous experience in data collections of large-scale surveys. A simulation exercise among the enumerators was conducted in order to minimize the plausible error. The respondents were informed about the purpose of the study and were assured about the confidentiality of their responses.

The outcome variable in this study was SHIP enrollment and categorized as one if at least one household member enrolled and zero otherwise. The possible explanatory variables include different factors such as household, community, illness as suggested by earlier research.¹⁵ Household economic status was constructed by summing all food as well as non-food expenditures and consumer durable items.¹⁶ The access to health facility (≤ 30 minutes or > 30 minutes) was operationalized as used in Adhikari et al. (2018).⁸

The initial analysis presents sample characteristics. It then distinguishes between SHIP coverage and non-coverage using Pearson's Chi-squared test. Binary logistic regression was then applied to calculate the predicted probability of falling into the outcome category for different groups. Before logistic regression was applied, multicollinearity among the independent variables was assessed using Variance Inflationary Factor (VIF) setting the decisive criteria of the value of more than 10. The criteria showed that none of the variables showed a high correlation. To corroborate the results of the cross-tabulation analysis, variables were further examined together for a multivariate assessment. The variables which did not show significant association with enrollment in SHIP at the bivariate level were discarded in binary logistic regression analysis. The fitted model displays the estimated adjusted odds ratios (ORs) along with 95% confidence interval (CI). Survey data were entered into Census and Survey Processing System (CSPRO) version 7.0 software. The statistical analysis was performed with STATA 12.0.¹⁷

Ethical clearance was obtained from the Nepal Health Research Council (NHRC) (Regd. no. 398/2017) and Pokhara University Research Center (PURC), Nepal (Ref. No. 100/074/75). The data collection approval was received from SHSDC, Nepal (Ref. No. 502). The study was approved by Kathmandu University School of Education (KUSOED), Nepal and it was supported by

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RESULTS

The analytical sample for this study was 1048 households with 98.3% response rate. Most of the surveyed households (90%) were headed by a male. The median age of household head was 43 years ranging from 18 to 85 years. The median year of schooling of the head was only 4 years. More than one-fifth (21%) household heads were employed in the formal sector. Table 1 shows the characteristics of the variables included in this study.

Table 2 reveals that the variables such as age, education, working status, and ethnicity showed a significant association with enrollment in SHIP. Participation in SHIP was significantly higher among heads aged 30-59 years (28%), among those with a tertiary level of education (54%), being employed at formal sector (43%), and among those who were Brahmin/Chhetri (40%). Education-related inequality in SHIP enrollment was clearly apparent in this study.

Table 3 reveals that household enrollment in SHIP was significantly higher among households with comparatively medium sized family (32%). Higher economic well-being was associated with higher SHIP uptake and it was the highest among the wealthiest households (44%). Results further indicate that differences in SHIP uptake were also observed by access to a health facility. Households being nearer to health facility were more likely to enroll in SHIP as compared to households far from a health facility. With regard to chronic illness, households consisting of at least one family member being suffered from chronic illness were more likely to have health insurance as compared to those households that did not have any member being suffered from chronic illness.

Table 1. Sample descriptive statistics (n=1048 households).

Characteristics	N	%	Characteristics	N	%
Head's gender		Household size			
Male	939	89.6	4 or less	292	27.9
Female	109	10.4	5 to 8	595	56.8
Head's age		9 or more			
Less than 30 years	89	8.5	Household wealth status	161	15.4
30 to 59 years	807	77.0	First	210	20.0
60 or more years	152	14.5	Second	210	20.0

Head's education status	Third	209	19.9		
No formal education	425	40.6	Fourth	210	20.0
Primary	220	21.0	Highest	209	19.9
Secondary	308	29.4	Urban-rural status		
Tertiary	95	9.1	Urban-Nagarpalika	748	71.4
Head's working status		Rural-Gaunpalika		300	28.6
Not working	90	8.6	Access to health facility		
Informal sector work	740	70.6	Within half an hour	680	64.9
Formal sector work	218	20.8	More than half an hour	368	35.1
Head's caste/ethnicity		Presence of chronic illness			
Tharu	520	49.6	None	389	37.1
Brahman/Chhetri	311	29.7	At least one member	659	62.9
Other castes	217	20.7	Enrollment in health insurance		
Head's religion		Enrolled		278	26.5
Hindu	989	94.4	Not enrolled	770	73.5
Non-Hindu	59	5.6			

Table 2. Enrollment in health insurance by head's characteristics (n=1048 households).

Explanatory variables	Not enrolled (%)	Enrolled (%)	Total Number
Head's gender			
Male	73.3	26.7	939
Female	75.2	24.8	109
Head's age **			
Less than 30 years	86.5	13.5	89
30 to 59 years	72.1	27.9	807
60 or more years	73.0	27.0	152
Head's education status ***			
No formal education	82.8	17.2	425
Primary	75.9	24.1	220
Secondary	67.2	32.8	308
Tertiary	46.3	53.7	95
Head's working status ***			
Not working	71.1	28.9	90
Working in the informal sector	78.7	21.4	740

Working in the formal sector	56.9	43.1	218
Head's caste/ethnicity***			
Tharu	76.0	24.0	520
Brahman/Chhetri	59.7	40.3	311
Other castes	82.9	17.1	217
Head's religion			
Hinduism	73.9	26.1	989
Non-Hindu	66.1	33.9	59
Total	73.5	26.5	1048

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 3. Enrollment in health insurance by household and illness characteristics (n=1048).

Explanatory variables	Not enrolled (%)	Enrolled (%)	Total Number
Household size***			
4 or less	82.5	17.5	292
5 to 8	67.7	32.3	595
9 or more	78.3	21.7	161
Household wealth status***			
Lowest	92.4	7.6	210
Second	73.8	26.2	210
Third	74.6	25.4	209
Fourth	70.5	29.5	210
Highest	56.0	44.0	209
Urban-rural status			
Urban-Nagarpalika	73.1	26.9	748
Rural-Gaunpalika	74.3	25.7	300
Access to health facility***			
Within half an hour	70.4	29.6	680
More than half an hour	79.1	20.9	368
Presence of chronic illness ***			
None	81.0	19.0	389
At least one member	69.0	31.0	659
Total	73.5	26.5	1048

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 4 presents the logistic regression results of the correlates of SHIP enrollment. The result indicates that the variables head's education, household size, economic well being and presence of chronic illness in the household were significantly associated with participation in SHIP enrollment. Education status of the household head was positively associated with insurance enrollment. Higher household economic status positively influenced insurance enrollment. Households with medium-sized family were more likely to have health insurance as compared to small sized households.

Table 4. Factors affecting enrollment in health insurance in the first piloted health insurance program district of Nepal, 2018 (n=1048 households).

Explanatory variables	ORs	95% CI	
Head's age in completed years	1.01	0.99	1.03
Head's education (No formal education=R)	1.00		
Primary	1.58**	1.01	2.47
Secondary	1.78**	1.13	2.80
Tertiary	2.36***	1.20	4.63
Head's occupation (Not working =R)	1.00		
Working in informal sector	0.54	0.30	0.99
Working in formal sector	0.85	0.42	1.71
Head caste/ethnicity (Tharu =R)	1.00		
Brahman/Chhetri	0.95	0.60	1.50
Other castes	0.63	0.34	1.16
Household size (4 or less =R)	1.00		
5 to 8	1.79***	1.17	2.75
9 or more	0.74	0.40	1.36
Economic quintile of household (Lowest=R)	1.00		
Second	4.99***	2.60	9.58
Third	5.04***	2.58	9.86
Fourth	5.13***	2.61	10.08
Highest	8.05***	3.93	16.48
Access to health facility (More than half hour =R)	1.00		
Within half an hour	1.01	0.71	1.44
Presence of chronic illness (None =R)	1.00		
At least one chronic illness	1.29*	1.09	1.83

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. R= Reference category

DISCUSSION

Despite the low level of enrollment in SHIP, this study has discovered that higher economic status, head's education, presence of chronic illness in the household, and medium sized family positively influenced the health insurance enrollment. However, the low range of influence of health insurance schemes was also observed in community-based health insurance program (CBHI) prior to SHIP of Nepal.^{7,8}

This result is consistent with several previous studies.¹⁸⁻²⁰ The households with health care need such as presence of chronic illness may add pressure on the resources and challenge the viability of the system. This is an issue of adverse selection.

Similar to previous studies,¹⁸⁻²⁰ this study showed that poor were significantly less likely to participate in SHIP. This indicates that the poor may not be able to pay the required contributions to the insurance program. The low enrollments among the poorest indicate a failure to reach the objective of equal access.¹⁵ This result can be explained by the 'inverse equity hypothesis' which suggests that "new health interventions" will initially benefit higher socioeconomic groups and widen health inequities, but if coverage increases intensely, the poor can eventually catch up and health inequities can be narrowed".²¹ However, voluntary nature of HI enrollment was found to be the lowest for the poorest households despite the premium exemption for all core poor households in many settings.¹⁵ Efforts need to be undertaken to ensure that all households that fall below the poverty line. The positive relationship between the head's education and enrollment underlines the findings of Ayitey et al. (2013) who found that rising education increases insurance enrollment. This again may be evidence of the inverse equity hypothesis, with the more educated most likely to benefit from new health interventions. Further, as the size of the household grows, risks are likely to be increased, so health insurance participation would increase with growth in the size of the household.²²

The study has some limitations. First, the study could not cover the provider's perspective, so, a qualitative approach is suggested to capture supply-side factors. Second, due to the cross-sectional nature of the data, causal associations may not be perfectly inferred. However, the findings from this study will make policymakers aware of the factors affecting enrolment in the social health insurance program of Nepal.

CONCLUSIONS

This study concludes that education, wealth status, and presence of chronic illness in the household are the key factors that influence enrollment in health insurance. Since education has a positive effect on SHIP uptake, thus, policy-makers focusing on health should not neglect the fact that education is itself a health intervention. Since only a small proportion of poor households were enrolled in the insurance scheme, thus, policymakers need to implement health insurance premium differently based on income levels to ensure equal access to health care. It is also important to harness the unique opportunities for poor people to achieve universal health coverage goal by 2030. Since the presence of chronic illness among family members' leads to high odds of household being enrolled, so a compulsory health insurance scheme can make the program financially sustainable.

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