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Factors Associated with Enrollment of Household in National Health Insurance Program in Eastern Nepal

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ABSTRACT

Background

Health insurance is entrusted to make health services more equitable and decrease the financial burden caused by catastrophic out-of-pocket payments. This study aimed to assess the factors affecting the enrollment of households in National Health Insurance Program (NHIP) in eastern Nepal.

Methods

Cross-sectional data were collected from 189 households in Itahari sub-metropolitan city using a structured questionnaire. Chi-square tests was used to examine the association between NHIP enrollment and selected demographic variables derived from the data.

Results

The findings showed that 63% of households were enrolled in NHIP and enrollment was associated with education, family type, ethnicity, socio-economic status, prior experience of illness, utilization of health facilities, and knowledge regarding NHIP.

Conclusions

Variables like education, family type, ethnicity, socio-economic status, prior experience of illness, utilization of health facility, knowledge regarding the annual premium amount, annual benefit ceiling, and renewal time found to be associated with NHIP enrollment.

Keywords: factors; enrollment; household; national health insurance program.

INTRODUCTION

Health insurance is key to achieving Universal Health Coverage (UHC) by risk pooling and redistribution of resources.[1-2] Approximately 925 million and 200 million individuals worldwide spend more than 10% and 25% of their household income on healthcare.[3] Many countries have their unique healthcare insurance schemes.[4] German Corporation for International Cooperation is working closely by supporting Health Sector Strategy in Social Health Protection.[5] German residents are required to have UHC,[6] while Singapore government covers 80% of entire cost through public hospitals and primary care polyclinics.[7] In 2019, only 14. 96% of the population enrolled in NHIP.[6] WHO is aligned with SDG target, reducing out-of-pocket payments 55.44% in 2018 in Nepal.[8] Nepal, a developing country with population under poverty[9] line i.e. 17.4%, The Nepalese government created the NHIP in 2016, with the goal of ensuring that all Nepalese citizens have equal and universal access to health care to reach goal of UHC.

METHODS

A cross-sectional study was conducted in Itahari-submetropolitan city to assess the factors associated with the enrollment of households in NHIP. Non–probability purposive sampling was used to collect information from 181 households in Itahari through an interview technique using a structured questionnaire. The diversity of the ethnic people as well as the external migrants have made Itahari City diverse in various demographic

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and sociocultural economic aspects. The sample size was calculated using the formula Z^2pq / d^2 Where, p= 31%, which p= 0.31 (District wise insures, taking as prevalence)[5], d= allowable error i.e., considered as 7% the desired sample was Households hold of Itahari Sub-metropolitan city were taken as participants. Data was collected using a structured questionnaire.[10] It consists of three parts. Part 1 consists of Demographic & socio-economic characteristics using International Wealth Index (IWI).[11] Part 2 consists of morbidity and risk characteristics and, Part 3 consists of knowledge about NHIP. The question was formulated in English and translated into Nepali using a back translation method to maintain the linguistic validity of the content. The draft Nepali questionnaire was pretested in 10% of the sample size in a similar setting to check out the clarity of the instrument and those subjects were not included in the final data. Before conducting the study, approval was taken from the Research Management Committee Biratnagar Nursing Campus. Permission was taken from the concerned administrative authority of ward No. 5 Itahari municipality. Written informed consent was taken from each respondent after explaining the component of the information sheet. Privacy and the confidentiality of information of all the respondents were maintained. Respondents had participated voluntarily and could discontinue at any point during the data collection period. The data were collected through face-to-face interviews on the door-to-door visit of each household involving one participant from one household irrespective of gender. All the data were kept in order for editing and coding. Data processing was done by using the computer Statistical Package for the Social Sciences 'SPSS Statistics for Windows, version *16 (SPSS Inc., Chicago, III., USA)'.[12] Descriptive statistics such as frequency, percentage, mean, median, and standard deviation were used to describe socio-demographic variables. Inferential statistics (chi-square) was used to find out the association of enrolment with sociodemographic factors.

RESULTS

The finding showed that more than two-third (63%) households were covered by NHIP and among them more than half (54.5%) of household heads were aged 40-59 years. A majority (86.2%) of households in the study were headed by males. Most of the household heads (81.5%) were literate whereas nearly half (42.9%) had secondary-level education. Nearly two-thirds 65.6%) of households belonged to the Brahmin/Chhetri ethnic group. The mean age of household heads was 48.51 ±12.338. Nearly two-thirds (66.1%) of the households were nuclear families. Also, significant proportions (82.5%) of households owned a house. Nearly three-fourths of households (72.5%) did not have children under five and one-third (34.9%) percent of households had presence elderly of sixty years and above (Table 1).

Table 1. Socio-Demographic Information of Household. (n=189)

Variable	Frequency (%)
Age of household head (in completed years)	
<40 years	42 (22.2)
40-59 years	103 (54.5)
≥ 60	44 (23.3)
Mean ± SD = 48.51 ±12.338	
Sex of household head	
Male	163 (86.2)
Female	26 (13.8)
Education of household head	
Illiterate	16 (8.5)
Can read and write	42 (22.2)
Basic level	30 (15.9)
Secondary level and above	81(53.4)
Ethnicity	
Dalit	3 (1.6)
Janajati	52 (27.5)
Madhesi	8 (4.2)
Brahmin/Chhetri	124 (65.6)
Others	2 (1.1)
Family type	
Nuclear	125 (66.1)
Joint	64 (33.9)
Presence of children aged ≤ 5	
At least one	52 (27.5)
None	137 (72.5)
Presence of elderly aged ≥ 60 years	
At least one	66 (34.9)
None	123 (65.1)
House ownership	
Owned by family members	156 (82.5)
Rented/not owned	33 (17.5)
Socio-economic status (International Wealth Index)	
First quantile	43 (22.7)
Second quantile	32 (16.0)
Third quantile	32 (16.9)
Fourth quantile	44 (23.3)
Fifth quantile	38 (20.1)

Regarding morbidity, at least one family member in nearly half (49.7%) of households had experience of illness and among those households, the majority (89.36%) had visited health service. The proportion of households that had members suffering from certain chronic diseases was more than one-third (36.5%) and households with disabilities were few (3.2%). At least one member under medication was nearly one-third (32.8%). Nearly half (48.7%) of households perceived the health status of family members as very good (Table 2).

Table 2. Morbidity and Risk Characteristics of Household. (n=189)

Variable	Frequency (%)
Family experience of illness (in past 3 months)	
At least one member	94 (49.7)
None	95 (50.3)
Health service utilization (n=94)	
At least one member	84 (89.3)
None	10 (10.7)
Presence of chronic illness in family	
At least one member	69 (36.5)
None	120 (63.5)
Presence of disability	
At least one member	6 (3.2)
None	183 (96.8)
Member on regular prescribed medication	
At least one	62 (32.8)
None	127 (67.2)
Perceived health status of family	
Very good	10 (5.3)
Good	92 (48.7)
Fair	84 (44.4
Poor	3 (1.6)

Knowledge of the study population about NHIP revealed that two-third (69.8%) of the participant had knowledge that an annual premium for family members of up to five members and nearly three-fourths (74.1%) had knowledge of the correct time period for renewal of NHIP. More than half were knowledgeable about the annual benefit ceiling (Table 3).

The findings depicted statistical association with NHIP enrollment including education of household head (p= 0.048), family type (p=0.006), Ethnicity (p=0.000), and elderly of 60 years of age and above (p=0.003). Likewise, ownership of household (p= 0.007) and socioeconomic status (p= 0.000) also showed an association. The socio-demographic factors such as the sex of the household head, and the presence of children of five years and below did not show any significant association with household enrollment in NHIP (Table 4).

Table 3. Knowledge about National Health Insurance Program. (n= 189)

Variable	Correct f (%)	Incorrect f (%)
The annual premium for family members ≤ 5 members is Rs.3500	132 (69.8)	57(30.2)
Annual premium for family members>5 members per member is Rs. 700	71(37.6)	118(62.4)
Annual benefit ceiling up to ≤ 5 member is Rs. 1,00,000	97 (51.3)	92(48.7)
Annual benefit ceiling >5 members per member is Rs. 20,000	37 (19.6)	152(80.4)
The maximum annual benefit ceiling NHIP bears per family per year is Rs. 2,00,000	44 (23.3)	145(76.7)
The period of membership renewal is 1 year	140 (74.1)	49(25.9)

Table 4. Association of Enrollment of Households in NHIP with Socio-demographic Factors. (n=189)

Variables	Enrolled f(%)	Not-enrolled f(%)	p-value
Age of household head (In completed years)			
<40	26 (13.8%)	16 (8.5%)	0.492
40-59	62 (32.8%)	41 (21.7%)	
≥ 60	31 (16.4%)	13 (6.9%)	
Sex of household head			
Male	102 (54.0%)	61 (32.3%)	0.783
Female	17 (9.0%)	9 (4.8%)	
Education of household head			
Illiterate	7 (3.7%)	9 (4.8%)	0.048*
Can read and write	25 (13.2%)	17 (9.0%)	
Basic level	15 (7.9%)	15 (7.9%)	
Secondary level and above	72 (38.1%)	29 (15.3%)	
Family type			
Nuclear	70 (37.0%)	55 (29.1%)	0.006*
Joint	49 (25.9%)	15 (7.9%)	
Ethnicity			
Brahmin/chhetri	90 (48.1%)	34 (182%)	<0.001*
Janajati	21 (11.2%)	31 (16.6%)	
Others**	7 (3.7%)	4 (2.1%)	
Children under five			
At least one children	34 (18.0%)	18 (9.5%)	0.671
None	85 (45.0%)	52 (27.5%)	
Elderly ≥ 60			
At least one	51 (27.0%)	15 (7.9%)	0.003*
None	68 (36.0%)	55 (29.1%)	
Ownership of household			
Owned	105 (55.6%)	51 (27.0%)	0.007*
Rented/not owned	14 (7.4%)	19 (10.1%)	
Socio-economic status			
First quantile	32 (16.9%)	11 (5.8%)	<0.001*
Second quantile	26 (13.8%)	6 (3.2%)	
Third quantile	24 (12.7%)	8 (4.2%)	
Fourth quantile	20 (10.6%)	24 (12.7%)	
Fifth quantile	17 (9.0%)	21 (11.1%)	

*(**) others include Dalit, Madhesi and others, *p-value<0.05 shows association using chi square test.*

With respect to morbidity and risk characteristics, a statistical association has been found with family experience of illness (p=0.001), utilization of health services (p= 0.017), and perceived health status (p=0.006). Other morbidity and risk characteristics such as the presence of chronic illness, presence of disability, and member on continuous medication showed no association with enrollment in NHIP (Table 5).

Table 5. Association of Enrollment of Households in NHIP with Morbidity and Risk characteristics.

Variables	Enrolled	Not-enrolled	p-value
Family experience of illness (3 months)			
At least one member	70 (37.0%)	24 (12.7%)	0.001*
None	49 (25.9%)	46 (24.3%)	
Health service utilization			
At least one member	55 (29.1%)	20 (10.6%)	0.017*
None	64 (33.9%)	50 (26.5%)	
Presence of chronic illness in family			
At least one member	44 (23.3%)	25 (13.2%)	0.862
None	75 (39.7%)	45 (23.8%)	
Presence of disability			
At least one member	115 (60.8%)	68 (36.0%)	0.849
None	4 (2.1%)	2 (1.1%)	
Member on continuous medication			
At least one	43 (22.8%)	19(10.1%)	0.204
None	76 (40.2%)	51 (27.0%)	
Perceived health status			
Very good	3 (1.6%)	7 (3.7%)	0.006*
Good	67 (35.4%)	25 (13.2%)	
Fair / poor	48 (25.9%)	38 (20.1%)	

**p-value< 0.05 shows association using chi square test.*

Similarly, the knowledge regarding the amount of annual premium for up to five members and beyond five both was associated (p-value of 0.00) with enrollment in NHIP. Likewise, knowledge about the benefit ceiling of households with five members, beyond five members, and maximum benefit all showed association (p=0.00) with an enrollment of households in NHIP. Also, knowledge of the correct period of renewal in NHIP showed an association (p=0.00) with the enrollment status the of household (Table 6).

Table 6. Association of Knowledge about NHIP with Enrollment of Households in NHIP. (n= 189)

Variables	Enrolled	Not-enrolled	*p*-value
The annual premium for family members ≤ 5 members is Rs.3500			
Correct	97 (51.3%)	35 (18.5%)	<0.001*
Incorrect	22 (11.6%)	35 (18.5%)	
Annual premium for family members > 5 members is Rs. 700			
Correct	67 (37.0%)	4 (2.1%)	<0.001*
Incorrect	52 (27.5%)	66 (34.9%)	
Annual benefit ceiling of up to ≤ 5 members is Rs. 1,00,000			
Correct	75 (39.7%)	22 (11.6%)	<0.001*
Incorrect	44 (23.3%)	48 (25.4%)	
Annual benefit ceiling >5 members per member is Rs. 20,000			
Correct	36 (19.0%)	1 (0.5%)	<0.001*
Incorrect	83 (43.9%)	69 (36.5%)	
The maximum annual benefit ceiling NHIP bears per family per year is Rs. 2,00,000			
Correct	41 (21.7%)	3 (1.6%)	<0.001*
Incorrect	78 (41.3%)	67 (35.4%)	
The period of membership renewal is 1 year			
Correct	107 (56.6%)	33 (17.5%)	<0.001*
Incorrect	12 (6.3%)	37 (19.6%)	

**p-value< 0.05 shows association using chi square test.*

DISCUSSION

The study conducted among 189 households showed an enrollment of nearly two-thirds (63%) households of Itahari Sub-metropolitan City enrollment NHIP which is more than double of enrollment rate in Sunsari district (31%) as claimed by the Health Insurance Board.[6] The factors associated with enrollment in NHIP as identified in this study include household family type, Brahmin ethnic group, elderly 60 years and above, and ownership of household and socio-economic status. Similarly, education of household, family experience of illness, service utilization, perceived health status, knowledge of annual premium amount, benefit ceiling covered and renewal time of NHIP showed association with enrollment of households in NHIP. The study illustrated an association (p-value 0.006) of family type with enrollment in NHIP which was supported by the study conducted in the Community Based Health Insurance (CBHI) Scheme in Low and middle–income countries (LMIS) indicating small size households more likely to enroll in multivariate analysis,[13] but in contrary a study conducted in Ilam showed significant association with joint family.[10] Adding to this a study conducted in Kaski District also contradicts the finding showing association with joint family in bi-variate analysis.[14] Presence of at least one elderly is associated (p-value 0.003) with an enrollment of households which is congruent with the study done in Ilam (p-value <0.001), Kaski (p-value

<0.001) and Bhaktapur (p-value <0.040) which showed association of the presence of elderly with enrollment in NHIP.[10,14-15] Whereas the systematic review of the literature reported the presence of elderly not being associated with enrollment.[13] Ownership of household in the study presented an association (p-value 0.007) with enrollment in NHIP which is supported by a study done in Kaski which demonstrated an association (p-value <0.001) between house ownership and enrollment status.[14] Similarly, and study of Ilam showed association (p-value 0.022).[10] The socio-economic status of the household of the study depicted an association (p-value <0.001) with enrollment in NHIP which was supported by the study of Ilam and Kaski Showing, higher economic status having higher enrollment in NHIP.[10,14] Furthermore the systematic review of the literature also proved education of households in influencing the uptake of the CBHI Scheme Positively.[13] Education of the household head showed an association (p-value 0.048) with enrollment in NHIP which is consistent with the study done in Ilam which showed an association (p-value <0.001).[10] This result is also assisted by the study of Kaski and Kailali which showed the association of enrollment in the scheme with household education.[14,16] The presence of illness in the past 3 months showed an association (p-value 0.001) with enrollment in NHIP which is coherent (p-value <0.01) with the study of Kaski.[14] The presence of chronic illness in the family showed no association (p-value 0.862) with an enrollment of households in NHIP which contradicts a finding of a study done in Ilam district which showed an association (p-value <0.001).[10] Knowledge of annual premium amount, benefits covered by NHIP, and renewal time showed an association (p-value <0.001) with enrollment of households in NHIP which is similar to the study conducted in Ethiopia's Community Based Health Insurance.[17] Furthermore, thematic synthesis done in the Community Health Insurance (CBHI) Scheme in Low and middle–income countries (LMIS) suggested knowledge and understanding about benefits enabled the uptake of the Scheme.[13]

CONCLUSIONS

Findings of the current study concluded that nearly two-thirds of households were enrolled in the National Health Insurance Program and education, family type, ethnicity, socio-economic status, prior experience of illness, utilization of health facility, knowledge regarding annual premium amount, annual benefit ceiling and renewal time are associated with enrollment in National Health Insurance Program.

Conflict of interest: None

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