

Factors Associated to the Enrollment in Health Insurance: An Experience from Selected Districts of Nepal

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Abstract

The enrollment in Health Insurance (HI) is considered as a sustainable way of financing for health and preparedness for catastrophic health care cost during receiving health services. Various socio-demographic factors are still unanswered regarding their influence. A study aiming to assess the factors associated with the enrollment of HI was conducted in 2018 in two districts of Nepal namely Kailali and Baglung. The study was cross-sectional covering 810 (405 enrolled and 405 not-enrolled) randomly selected households (HH). Socio-demographic variables were considered as independent variables and enrollment in HI as dependent variable. An interview schedule was used as a tool for data collection. Univariate, bivariate and multivariate analyses were performed to analyze the data. The data show that various socio-demographic characteristics are associated with the enrollment of HI. A significant statistical difference is seen between enrollment to HI and HH headship, age group of respondents, ability to feed the family, presence of chronic diseases in family, knowledge on HI, willingness to pay (WTP) for HI, having HI guidelines or books, participation in HI related training, interactions with neighbours, access to communication media: the radio/FM and TV, hoarding boards (HB), newspapers, posters/pamphlets/brochures; and access to health facilities. The results further show that female heads appear more likely to enroll (aOR = 1.47) in HI than the male. HH headship of the respondents also seem more likely to enroll. Higher age respondents are less likely to enroll. Interestingly, literate respondents and joint families are less likely to enroll than illiterate and nuclear families respectively. However, respondents having knowledge in HI seem more likely to enroll (aOR = 28.97, $p < 0.001$) than those who are unaware about HI. Those with higher WTP for HI are more likely to enroll (aOR = > 1.673 , $p < 0.05$) than low WTP. Respondents having guidelines or books, interactions with neighbours or relatives, exposure to the radio/FM, TV and HB seem significantly more likely to enroll. Respondents who feel susceptible to diseases are more likely to enroll (aOR = 1.484, $p < 0.05$) compared to those who do not. Knowledge on HI, WTP, having HI related books or guidelines, exposure to the media (the radio/FM, TV, HB), interactions with neighbours appear to be the positive predictors for enrollment. Appropriate interventions should be implemented considering the factors for increased participation in HI.

Keywords: health insurance, enrollment, Nepal, socio-demographic variables

1. Introduction

Though the Constitution of Nepal, 2015 (Article 35) has offered the basic health service as a fundamental right of the citizen (Nepal Law Commission, n. d.), the Government of Nepal (GoN) had allocated less than four (3.86) percent of the total budget (Department of Health Services, 2018) in the fiscal year 2016/17 for the health sector which accounts for less than two percent of gross domestic products. The investment seems insufficient for public health service delivery as per the constitutional provision and international and national commitments. Therefore, an alternative approach was searched for health financing. Besides these, the GoN declared commitment to meet the targets of Sustainable Development Goals (SDG) including Universal Health Coverage (UHC), health insurance (HI) is one and the strategies to meet the health related targets of SDG and the sentiment of UHC. Following these provisions, the GoN has implemented health insurance programme (HIP) as Social Health Security at the initial phase in three districts namely Kailali, Baglung and Illam since 2016. Now

the programme has been expanded in other districts too (Health Insurance Board, 2017).

Many low and middle income countries' health care expenditure is mostly covered by out-of-pocket (OOP) while receiving health services. The high OOP leads to increasing financial risks and inequity in access to quality health care (Adebayo, 2014). It is claimed that a high level of OOP is one of the causes of poverty. Therefore, strengthening the financial security is one of the main strategies to reduce poverty. Available data shows that 60.4 percent of current health expenditure was paid by OOP (World Health Organization, 2016) which is a barrier of UHC. It means that if the people or patients have money during illness, they can afford or receive treatment. An appropriate mechanism is needed for pre-financing approaches to reduce the uncertainty of health illness or catastrophic cost for health (Adebayo et al., 2015; Panda et al., 2016). Since the health status of the citizen is one of the major indicators of the human development index, community based health is also considered as a means of poverty reduction (Tesfay, 2014). The GoN started HIP to ensure the access to quality health services without financial hardship by means of the HI (Health Insurance Board, n.d.) and to reduce the gap of health service utilization by the poor and the rich. HI is considered as social protection that aims to reduce poverty and vulnerability as well (Koehler & Hoffmann, 2014). World Health Organization (WHO) claims that two percent poverty increases every year due to high out-of-pocket expenditure while receiving the health services especially from the private sectors. It is also assumed that HI can make the health services accessible to all (Koehler & Hoffmann, 2014). HI is regarded as 'a ticket' for good health care (Abdel-Ghany & Wang, 2001). It is claimed that patients who do not have HI, receive fewer services and less care have lower chance of experiences of positive clinical outcomes (Fowler et al., 2010). It is anticipated that healthy citizens can contribute to economic and social development of the country significantly. However, the HIP may be suffered to run smoothly due to inadequate homework to address the factors that are associated with the enrollment as experienced from United Mission to Nepal in 1976 and B P Koirala Institute of Health Sciences in 2000 respectively (KOICA-Nepal Health Insurance Support Project, 2014). It is believed that HI can enhance the access to health services for those who live in low and middle income countries (Adebayo et al., 2015).

In Nepal, the enrollment rate in HI seems very low in many districts-though the causes of poor enrollment is still unanswered (Health Insurance Board, 2017). Even in the United States of America, one third of the Americans aged under 65 years did not have HI in 2010 (Fowler et al., 2010). Only the launching of the programme is not enough but participation of the people is equally important. Therefore it is crucial to identify the factors that influence in the enrollment. Many studies show that socio-demographic characters are the major predictors for enrollment in HI (Adebayo et al., 2015; Panda et al., 2016). The study aimed to assess the factors that are linked to the enrollment of health insurance in selected districts of Nepal.

2. Methods

A descriptive study was conducted in Baglung and Kailali Districts of Nepal. The Government of Nepal (GoN) initiated the Health Insurance (HI) programme as Social Health Security (SHS) in Kailali, Baglung and Illam Districts in the initial phase in 2016. The study chose Baglung from the Hill and Kailali from the Terai. All the enrolled households (HH) were the population of the study for enrolled HH sample. The data were collected by using an interview schedule at respondents' home or where they were available and convenient to them. Generally, responses were collected from household heads. In his/her absence or him/her refusing to respond, another senior member of the HH was requested to respond. Only the HHs who had enrolled before January 15th, 2018 were included in the sample. Enrolled or participated by insurance companies other than Health Insurance Board (HIB) were excluded in the study. Various socio-demographic characteristics, access to information sources, and knowledge about health and HI were considered as independent variable and enrollment in health insurance (EHI) as a dependent variable. The sample size was calculated by using Daniel's formula (Naing, Winn, & Rusli, 2006):

$$n = (z^2\rho(1 - \rho))/d^2$$

where n = sample size,

z = level of confidence,

ρ = expected prevalence (assuming 50/50 probability or 50%) (50%, $\rho = 0.5$), and

d = accepted margin of error (5%, $d = 0.05$).

So the sample size = 384.16.

By adjusting the non-response rate of five percent experienced in latest survey (Ministry of Health; New ERA; and ICF, 2017) which accounts for 405 for enrolled HH and same size of sample was allocated for non-enrolled HH. Altogether a total of 810 samples were selected for the study. The sample was distributed as per the

population proportion to size following the latest national census (Central Bureau of Statistics, 2014). As a result, 566 households (283 enrolled and 283 non-enrolled HH) for Kailali and 244 (122 enrolled and 122 non-enrolled HH) for Baglung. The list/number of the enrolled HHs was obtained from HIB district offices respectively from Kailali and Baglung and the sample was selected by using random number generator; a software available at Google for enrolled HH. For the non-enrolled sample, the nearest HH of the selected enrolled HH was selected. The interview schedule was used to collect the data. Data were collected for three months since March, 2018 in Kailali and Baglung. An ethical approval was taken from Nepal Health Research Council and permission was obtained from the concerned districts and local authorities as required. Consent was taken from respondents before interviewing. Data was entered into the SPSS version 20 software and the sample was cross checked for consistency. Some attributes of variables were merged due to the poor responses. Univariate, bivariate then multivariate analyses were performed for statistical output.

3. Results

3.1 Socio-demographic Background of Respondents/Households

Of the total respondents, more than half (51%) were females and two third (66%) were household heads. Nearly 60 percent respondents were from 21 to 40 age group while the mean age of the respondents was 37 years. More than 92 percent of the respondents were literate. Forty-one percent of the respondents were from the nuclear family. The average size of the family was 5.6 whereas 56 percent of the HHs had upto five members. Just over the half (51.2%) of the HHs had enough food throughout the year. More than one third (34.6%) of the respondents expressed that presence of some kinds of diseases in their families, of them one third had heart related problems. Of the respondents, 28 percent were unnoticed by the HI. More than 42 percent of respondents said that they had felt financial trouble due to health problems. An average of willingness to pay for HI was 1429 Nepalese Rupees whereas 74 percent of the participants expressed that willingness to pay for HI was almost three times of the current contribution amount NRs. 500 mentioned by HIB. Only 17 percent of the respondents had read HI related guidelines or books or information flyers and five percent of the participants participated in HI related training or meetings. Nearly one third (32%) of the respondents had discussed about HI with their neighbours or relatives whereas just 19 percent of respondents had gained knowledge about HI from the social media. Nearly 48 percent of the respondents had listened to HI related information from the radio/FM and 38 percent from television. Nearly 27% of the respondents had seen HI related messages from the hoarding boards but just 13% of the respondents read HI related information from newspapers. Similarly, 18% of the respondents had seen HI related brochures, leaflets, pamphlets or posters. Less than half (48%) of the respondents felt that they were susceptible to health problems. More than 72% of the HHs had access to health institutions within half an hour and the mean time to visit health facilities was nearly the same - 30 (SD 22) minutes. Nearly one third of the respondents informed that their family members were aboard during data collection.

Table 1. Background Characteristics of Households and Respondents

Variables	Category	N	%
Gender	Male	397	49.0
	Female	413	51.0
Household headship	No	276	34.1
	Yes	534	65.9
Respondents' age	Up to 20 years	23	2.8
	21 to 40 years	482	59.5
	41 to 60 years	233	28.8
	More than 60 years	72	8.9
Educational status	Illiterate	60	7.4
	Literate	246	30.4
	Basic education	214	26.4
	Secondary education	197	24.3
Family type	Bachelor or higher	93	11.5
	Nuclear	332	41.0
Family size	Joint	478	59.0
	Up to 5 members	457	56.4
	6 to 10 members	340	42.0
	More than 10 members	13	1.6

Wealth status	Poorest	162	20.0
	Poor	162	20.0
	Middle	162	20.0
	Rich	162	20.0
	Richest	162	20.0
Food availability	Throughout the year	415	51.2
	9 to 12 months	61	7.5
	6 to 9 months	90	11.1
	3 to 6 months	114	14.1
	Less than 3 months	130	16.0
Presence of chronic diseases in family	No	530	65.4
	Yes	280	34.6
HI knowledge	No	227	28.0
	Yes	583	72.0
Faced financial trouble due to health problem	No	468	57.8
	Yes	342	42.2
Willingness to pay for health insurance	Up to NRs. 500/-	211	26.0
	NRs. 501 to 1500	395	48.8
	More than NRs. 1500/-	204	25.2
Have HI related books	No	674	83.2
	Yes	136	16.8
Participated in training/workshop	No	770	95.1
	Yes	40	4.9
Discussed with neighbours	No	551	68.0
	Yes	259	32.0
Known from social media	No	655	80.9
	Yes	155	19.1
Access to information by radio/FM	No	424	52.3
	Yes	386	47.7
Watched HI related information in TV	No	500	61.7
	Yes	310	38.3
Seen hoarding board	No	594	73.3
	Yes	216	26.7
Read newspaper	No	704	86.9
	Yes	106	13.1
Seen brochure or poster/pamphlet	No	668	82.5
	Yes	142	17.5
Susceptible to health problem***	No	424	52.3
	Yes	386	47.7
Access to health facility	Up to 30 minutes	585	72.2
	31 to 60 minutes	190	23.5
	More than 60 minutes	35	4.3
Family member aboard	No	566	69.9
	Yes	244	30.1
Total		810	100

3.2 Socio-demographic Characteristics of the Respondents/Households and Enrollment in Health Insurance

The data shows some interesting results that more than 53 percent of the male respondents were enrolled in HI compared to 47 percent of the females. The male household head had higher enrollment (53%) compared to female HHH (45%) ($p < 0.05$). The enrollment was higher in age group, 41 to 60 years which accounts for 59 percent ($p < 0.001$). Remarkably, 55 percent of the respondents who could not read and write were enrolled in HI.

More than half (51%) of the HHs from joint families were enrolled compared to 49 percent of nuclear families. Data shows that the higher the family size the lower the enrollment rate. Only 39 percent of the HHs having more than 10 members were enrolled in HI. In the case of wealth, the percent of enrollment in HI were 58, 52, 51, 46 and 43 percent respectively from the richest, rich, poorest, poor and middle income. Nearly half (49.9%) of the HHs having enough food were enrolled and 64 percent who had enough food for just three to six months were enrolled in HI ($p < 0.01$).

Table 2. Background Characteristics of Households/Respondents and the Enrollment in Health Insurance

Variables	Category	Enrolled in health insurance				Total	
		No		Yes		N	Phi Value
		N	%	N	%		
Gender	Male	186	46.9	211	53.1	397	
	Female	219	53.0	194	47.0	413	
Household headship*	No	153	55.4	123	44.6	276	0.078
	Yes	252	47.2	282	52.8	534	
Respondents' age***	Up to 20 years	17	73.9	6	26.1	23	0.191
	21 to 40 years	270	56.0	212	44.0	482	
	41 to 60 years	95	40.8	138	59.2	233	
	More than 60 years	23	31.9	49	68.1	72	
Educational status	Illiterate	27	45.0	33	55.0	60	
	Literate	132	53.7	114	46.3	246	
	Basic education	103	48.1	111	51.9	214	
	Secondary education	99	50.3	98	49.7	197	
	Bachelor or higher	44	47.3	49	52.7	93	
Family type	Nuclear	169	50.9	163	49.1	332	
	Joint	236	49.4	242	50.6	478	
Family size	Up to 5 members	231	50.5	226	49.5	457	
	6 to 10 members	166	48.8	174	51.2	340	
	More than 10 members	8	61.5	5	38.5	13	
Wealth status	Poorest	80	49.4	82	50.6	162	
	Poor	87	53.7	75	46.3	162	
	Middle	92	56.8	70	43.2	162	
	Rich	78	48.1	84	51.9	162	
	Richest	68	42.0	94	58.0	162	
Food availability **	Throughout the year	208	50.1	207	49.9	415	0.142
	9 to 12 months	28	45.9	33	54.1	61	
	6 to 9 months	56	62.2	34	37.8	90	
	3 to 6 months	41	36.0	73	64.0	114	
	Less than 3 months	72	55.4	58	44.6	130	
Presence of chronic diseases***	No	292	55.1	238	44.9	530	0.140
	Yes	113	40.4	167	59.6	280	
Health insurance knowledge***	No	217	95.6	10	4.4	227	0.569
	Yes	188	32.2	395	67.8	583	
Past experiences of financial crisis	No	241	51.5	227	48.5	468	
	Yes	164	48.0	178	52.0	342	
Willingness to pay for health insurance ***	Up to NRs. 500/-	142	67.3	69	32.7	211	0.209
	NRs. 501 to 1500	180	45.6	215	54.4	395	
	More than NRs. 1500/-	83	40.7	121	59.3	204	
HI related books***	No	382	56.7	292	43.3	674	0.279
	Yes	23	16.9	113	83.1	136	
Participated in HI related training/workshop**	No	394	51.2	376	48.8	770	0.103
	Yes	11	27.5	29	72.5	40	

Discussed with neighbour or relatives about HI***	No	335	60.8	216	39.2	551	0.315
	Yes	70	27.0	189	73.0	259	
Known from social media	No	336	51.3	319	48.7	655	
	Yes	69	44.5	86	55.5	155	
Listened HI related information from radio/FM***	No	259	61.1	165	38.9	424	0.232
	Yes	146	37.8	240	62.2	386	
Watched HI related information in TV***	No	290	58.0	210	42.0	500	0.203
	Yes	115	37.1	195	62.9	310	
Seen hoarding board***	No	335	56.4	259	43.6	594	0.212
	Yes	70	32.4	146	67.6	216	
Read newspaper**	No	367	52.1	337	47.9	704	0.110
	Yes	38	35.8	68	64.2	106	
Seen brochure or poster/pamphlet***	No	359	53.7	309	46.3	668	0.162
	Yes	46	32.4	96	67.6	142	
Susceptible to health problem***	No	246	58.0	178	42.0	424	0.168
	Yes	159	41.2	227	58.8	386	
Access to health facilities	Up to 30 minutes	286	48.9	299	51.1	585	
	31 to 60 minutes	100	52.6	90	47.4	190	
	More than 60 minutes	19	54.3	16	45.7	35	
Family member aboard	No	283	50.0	283	50.0	566	
	Yes	122	50.0	122	50.0	244	

Note: significant at * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Nearly 60 percent of the HHs having ailments were enrolled in HI ($p < 0.001$). More than two third (68%) of the respondents having knowledge about HI were enrolled and less than half (42%) of the respondents faced financial problems during health care and 52 percent of them were enrolled. Nearly six out of ten (59%) of the respondents who were enrolled were found willing to pay for HI that was more than 1500 Nepalese Rupees ($p < 0.001$). More than 83 percent of the respondents who had HI related books or guidelines were enrolled ($p < 0.001$) to the HI. Nearly three fourths (73%) of the respondents who participated in training or workshops were enrolled ($p < 0.01$). Similarly, 73 percent of the respondents enrolled in HI expressed that they discussed with neighbour and relatives about HI related matters ($p < 0.001$). More than half (56%) of the respondents who knew from social media were enrolled. Consequently, 62 and 63 percent of the respondents were enrolled in HI who listened HI related information from radio/FM and watched Television respectively ($p < 0.001$). More than two thirds (68%) of the respondents who noticed the message from the hoarding board were enrolled in HI ($p < 0.001$). Likewise, 64 percent of the respondents were enrolled who read HI related information from newspapers ($p < 0.01$). Another similar result showed that 68 percent of the respondents were enrolled who read or seen HI related leaflet, brochure, posters and pamphlet ($p < 0.001$). Of the respondents, about 59 percent were enrolled in HI who felt that they were susceptible to health problems ($p < 0.001$). More than half (51%) of the enrolled respondents expressed that they had access to health facilities within 30 minutes. The data show that HHs having family members aboard had equal chance to enroll in HI or not.

3.3 Multivariate Logistic Regression on the Factors Associated with the Enrollment of Health Insurance

Findings from logistic regression indicate that female respondents were more likely to enroll (aOR = 1.047) in HI than males. Similarly, the respondents who were household head were less likely to enroll in HI (aOR = 0.934). Nearly the same result was seen in age groups, the respondents age 21 to 40 years were less likely (aOR = 0.177, $p < 0.001$) to enroll while those age 41 to 60 years (aOR = 0.282, $p < 0.05$) and more than 60 years (aOR = 0.324) compared to age less than 20 years. Interestingly, literate respondents were also less likely to enroll in HI compared to the illiterate. The respondents, who could simply read and write, basic education, secondary education and higher education were less likely to enroll in HI (aOR = 0.224, 0.233, 0.227, and 0.179 $p < 0.001$) respectively. Joint families also seemed less likely (aOR = 0.921) to enroll in HI than nuclear families. HHs having more than 10 members were more likely (aOR = 1.194) to enroll compared to small family having less than five members. Moreover, poor, middle income and the richest HHs were less likely to enroll than the poorest HHs. HHs having food enough for 9 to 12 months and three to 6 months were more likely to enroll compared to HHs that had enough food throughout the year. However, the respondents having knowledge about

HI were more likely to enroll in HI (aOR = 28.970, $p < 0.001$) compared to those who were unaware about HI. Families with financial crisis due to health problems were less likely (aOR = 0.812) to enroll in HI compared to those who had not. Willingness to pay seemed a positive predictor for enrollment in HI. Respondents who wanted to pay NRs. 501 to 1500 and more than 1500 were more likely to enroll in HI (aOR = 1.673 & 1.793, $p < 0.05$) than those who wanted to pay equal or less than 500 per year per person. Respondents having HI related books or guidelines at home were more likely (aOR = 4.379, $p < 0.001$) to enroll compared to those who had not whereas, respondents' who had participated in training and workshop were less (aOR = 0.503) likely to enroll in HI than those who did not participate.

Table 3. Adjusted Odds Ratio from Logistic Regression Model at 95 % Confidence Interval by Background Characteristics of Households/Respondents and Enrollment in Health Insurance

Variables	Category	N	aOR	95% CI	
				Lower	Upper
Gender	Male (ref.)	397			
	Female	413	1.047	.680	1.613
Household headship	No (ref.)	276			
	Yes	534	.934	.580	1.505
Respondents' age	Up to 20 years (ref.)	23			
	21 to 40 years	482	.177***	.066	.472
	41 to 60 years	233	.282*	.101	.785
	More than 60 years	72	.324	.099	1.062
Educational status	Illiterate (ref.)	60			
	Literate	246	.224***	.100	.502
	Basic education	214	.233***	.102	.534
	Secondary education	197	.227***	.096	.535
Family type	Bachelor or higher	93	.179***	.066	.488
	Nuclear (ref.)	332			
Family size	Joint	478	.929	.570	1.516
	Up to 5 members (ref.)	457			
	6 to 10 members	340	.921	.572	1.483
Wealth status	More than 10 members	13	1.194	.228	6.257
	Poorest (ref.)	162			
	Poor	162	.618	.338	1.132
	Middle	162	.472*	.253	.880
	Rich	162	.559	.288	1.085
Food availability	Richest	162	.594	.303	1.165
	Throughout the year (ref.)	415			
	9 to 12 months	61	1.235	.584	2.611
	6 to 9 months	90	.610	.332	1.121
	3 to 6 months	114	1.022	.573	1.824
Presence of chronic diseases	Less than 3 months	130	.799	.464	1.373
	No (ref.)	530			
HI knowledge	Yes	280	1.090	.719	1.650
	No (ref.)	227			
Past experiences of financial crisis	Yes	583	28.970***	14.903	56.318
	No (ref.)	468			
Willingness to pay for health insurance	Yes	342	.812	.550	1.199
	Up to NRs 500/- (ref.)	211			
	NRs 501 to 1500/-	395	1.673*	1.043	2.681
HI related books or guidelines	More than NRs.1500/-	204	1.793*	1.037	3.102
	No (ref.)	674			
	Yes	136	4.379***	2.356	8.140

Participated in HI related training/workshop	No (ref.)	770			
	Yes	40	.503	.200	1.269
Discussed with neighbour/relatives about HI	No (ref.)	551			
	Yes	259	1.851**	1.183	2.896
Known from social media	No (ref.)	655			
	Yes	155	.539*	.314	.928
Listened HI related information from radio/FM	No (ref.)	424			
	Yes	386	1.115	.735	1.692
Watched HI related information in TV	No (ref.)	500			
	Yes	310	1.346	.863	2.099
Seen hoarding board	No (ref.)	594			
	Yes	216	1.492	.892	2.497
Read newspaper	No (ref.)	704			
	Yes	106	.741	.391	1.402
Seen brochure/poster/pamphlet	No (ref.)	668			
	Yes	142	.855	.466	1.569
Susceptible to health problem	No (ref.)	424			
	Yes	386	1.484*	1.010	2.181
Access to health facility	Up to 30 minutes (ref.)	585			
	31 to 60 minutes	190	1.076	.673	1.719
	More than 60 minutes	35	.452	.184	1.113
Family member aboard	No (ref.)	566			
	Yes	244	.751	.497	1.135
2 Log Likelihood		730.085			
Cox & Snell R Square		.384			

Note: significant at *p<0.05, **p<0.01, ***p<0.001

The respondents who had some discussion with neighbours were more likely to enroll (aOR = 1.851, p<0.01) compared to those who did not discuss with neighbours about HI but exposure to social media about HI was not a strong driver to enroll (aOR = 0.539, p<0.05) in HI. HHs that received HI related information from radio/FM and television seemed more likely to enroll (aOR = 1.115 & 1,346). Similarly, respondents who got HI related messages from hoarding boards were more likely to enroll (aOR = 1.492) than those who did not have exposure. Likewise, respondents who got information form brochure, leaflet, poster and pamphlet seemed to have lower chances to enroll in HI. Respondents who felt susceptible to diseases were more likely to enroll (aOR = 1.484, p<0.05) compared to those who did not. HHs that had access to health facilities within 30 to 60 minutes were more likely to enroll (aOR = 1.076) than those who had access within half an hour. HHs having family member aboard were less likely to enroll in HI (aOR = 0.751) compared to HHs that did not have.

4. Discussion

The data show that different factors were associated with the enrollment in HI. Some factors that were significantly associated include household headship, age group of respondents, ability to feed the family, presence of chronic diseases, knowledge on HI, experiences of financial trouble due to diseases, willingness to pay, exposure to HI related books or guidelines, participation in HI related training and workshops, interaction with neighbours, information received from the radio/FM, TV, hoarding boards, newspapers, poster or pamphlet, and feeling susceptible to health problems. Results from different studies show that educational level, age as well as self-employment are positively associated with the enrollment of HI (Abdel-Ghany & Wang, 2001).

Some studies have found that the enrollment in HI seemed high in some ethnic groups, others claim that age group and education level of respondents are the predictors for enrollment. Household size and enrollment in HI have positive association but other studies did not support it. A systematic review shows that educational level (high), sex (male), age (younger), and HH size (larger) have positive association with willingness to pay and enrollment in HI (Adebayo et al., 2015). The review also claims that lack of funds, lack of trust and poor quality of health care are major causes of low enrollment in HI. Another study from Ethiopia shows that presence of diseases in HH, income, educational status and first point of treatment were some influencing factors for

enrollment in HI and utilization of services as well (Tilahun, Atnafu, Asrade, Minyihun & Alemu, 2018). However, another study indicates that presence of HI is associated with the prompt utilization of health services (Skinner, Foster, Mitchell, & Haynes, 2014). Illiteracy or low level of education, poor social support and homelessness are considered as determinants for non-enrollment in HI (Fowler et al., 2010). Interestingly, nearly the same results are shown in a systematic review that income of HH, educational level of HHH, female headed HH, age of HHH, size of HH and presence of chronic diseases in a family member were positively associated with the enrollment of HI (Panda et al., 2016). In this study, HHs having high wealth status seemed less likely to enroll in HI. However, a study in Nigeria shows a contrasting result that HHs from lowest wealth quintiles had higher risk of catastrophic health expenditure (Ilesanmi, Adebisi, & Fatiregun, 2014).

5. Conclusion

Different socio-demographic characteristics appear as the influencing factors for the enrollment in HI. Age group of the respondents, knowledge regarding HI, willingness to pay for HI, interaction with neighbours, feeling of susceptibility to diseases or health problems, and HI related information from the radio/FM, television and hoarding boards were the major predictors for enrollment in HI. Since the interactions with neighbours had a positive association with the enrollment in HI, appropriate interaction should be made with neighbours and the public. Besides these, the influencing factors should be considered at the time of planning of the intervention.

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Conflict of interest

The authors declare that there is no conflict of interest with this research.

Author contributions

DA conducted survey, edited and entered the data, analyzed the data and prepared the manuscript. BD supervised all the processes including study design and edited the manuscript. BPW edited the manuscript, participated in revision. All the authors did agree to submit this paper for publication.

References

- Abdel-Ghany, M., & Wang, M. Q. (2001). Factors Associated with Different Degrees of Health Insurance Coverage. *Family and Consumer Sciences Research Journal*, 29(3), 252–264. <https://doi.org/10.1177/1077727X01293003>
- Adebayo, E. (2014). *Factors That Affect Uptake of Community-Based Health Insurance in Low and Middle-Income Countries: A Systematic Review*. University of Cape Town. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3927816/>
- Adebayo, E. F., Uthman, O. A., Wiysonge, C. S., Stern, E. A., Lamont, K. T., & Ataguba, J. E. (2015). A systematic review of factors that affect uptake of community-based health insurance in low-income and middle-income countries. *BMC Health Services Research*, 15(1). <https://doi.org/10.1186/s12913-015-1179-3> PMID:26645355 PMCid:PMC4673712
- Central Bureau of Statistics. (2014). *Statistical pocket book of Nepal*. Kathmandu: Author.
- Department of Health Services. (2018). *Annual Report FY 2073/74 (2016/17)*. Kathmandu. Retrieved from http://dohs.gov.np/wp-content/uploads/2018/04/Annual_Report_2073-74.pdf
- Fowler, R. A., Noyahr, L.-A., Thornton, J. D., Pinto, R., Kahn, J. M., Adhikari, N. K. J., ... Curtis, J. R. (2010). An Official American Thoracic Society Systematic Review: The Association between Health Insurance Status and Access, Care Delivery, and Outcomes for Patients Who Are Critically Ill. *American Journal of Respiratory and Critical Care Medicine*, 181(9), 1003-1011. <https://doi.org/10.1164/rccm.200902-0281ST>
- Health Insurance Board. (n. d.). *Social Health Security Programme: Annual Report FY 2073/74(2016/17)*. Kathmandu. Retrieved from <http://shs.gov.np>
- Health Insurance Board. (2017). *Annual Report FY 2073/74(2016/17)*. Kathmandu. Retrieved from <http://shs.gov.np/site/content/detail/annual-report-of-fy-2073074>
- Ilesanmi, O. S., Adebisi, A. O., & Fatiregun, A. A. (2014). Original Article National health insurance scheme: how protected are households in Oyo State, Nigeria from catastrophic health expenditure? *International*

- Journal of Health and Policy Management*, 2(4), 175-180. <https://doi.org/10.15171/ijhpm.2014>.
- Koehler, G., & Hoffmann, M. (2014). Social Protection in Nepal: Challenges and Ideas. *Development Advocate Nepal*, (1). Retrieved from <http://www.np.undp.org/content/nepal/en/home/library/development-advocate-nepal/development-advocate-nepal-april-2014---september-2014.html>
- KOICA-Nepal Health Insurance Support Project [NHISP]. (2014). *Comprehensive district assessment for health insurance in Kailali district*. Lalitpur, Kathmandu: NHISP.
- Ministry of Health; New ERA; and ICF. (2017). *Nepal Demographic and Health Survey 2016*. Kathmandu, Nepal.
- Naing, L., Winn, T., & Rusli, B. N. (2006). Practical Issues in Calculating the Sample Size for Prevalence Studies. *Archives of Orofacial Sciences*, 1(Ci), 9-14. <https://doi.org/10.1146/annurev.psych.60.110707.163629>
- Nepal Law Commission. (n. d.). *Constitution of Nepal 2015*. Retrieved from <http://www.lawcommission.gov.np/en/documents/2016/01/constitution-of-nepal-2.pdf>
- Panda, P. K., Dror, D. M., Hossain, S. a. S., Majumdar, A., Pérez Koehlmoos, T. L., & John, D. (2016). Factors affecting uptake of voluntary and community-based health insurance schemes in low- and middle-income countries? A Systematic Review and Meta-Analysis. *Plos One*, 11(June), 184. <https://doi.org/10.1371/journal.pone.0160479>
- Skinner, E., Foster, M., Mitchell, G., & Haynes, M. (2014). Effect of health insurance on the utilisation of allied health services by people with chronic disease: A systematic review and meta-analysis. *Australian Journal of Primary Health*, 9, 19. <https://doi.org/10.1071/PY13092>
- Tesfay, G. (2014). *The impact of community based health insurance in health service utilization in Tigray (Case of kilte Awlaelo woreda)* College of business and economics Department of economics the impact of community based health insurance in health service Utilizatio. Mekelle University.
- Tilahun, H., Atnafu, D. D., Asrade, G., Minyihun, A., & Mulugeta Alemu, Y. (2018). Factors for healthcare utilization and effect of mutual health insurance on healthcare utilization in rural communities of South Achefer Woreda, North West, Ethiopia. *Health Economics Review*, 8(15). <https://doi.org/10.1186/s13561-018-0200-z>
- World Health Organization. (2016). *Health in the Sustainable Development Goals: Where are we now in the South-East Asia Region? What Next?* World Health Organization, Regional Office for South-East Asia, Indraprastha Estate, Mahatma Gandhi Marg, New Delhi. Retrieved from http://www.searo.who.int/entity/health_situation_trends/health_in_sustainable_develop_goals.pdf?ua=1

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