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# Utilization of Health Services Among Elderly People Enrolled in National Health Insurance Program: A Cross-Sectional Study From Pokhara , Nepal

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## Abstract

***Introduction***

*Ensuring access to healthcare services for the elderly is a global imperative. The growing elderly population leads to a higher demand for healthcare services because of rising instances of chronic illnesses and a generally lower perceived state of health. This study assesses the utilization of health services and its associated factors among the elderly people enrolled in the national health insurance program (NHIP) in Pokhara, Nepal.*

***Materials and Methods***

*A community-based cross-sectional study was conducted among 275 insured elderly people of Pokhara Metropolitan using multistage probability sampling. A structured interview schedule was used to collect the data. Data were entered in Epi-data and analyzed using the Statistical Package for Social Sciences (SPSS). Uni-variate, bi-variate and multivariate analyses were carried out to obtain results as per our objectives.*

***Results***

*The result of the study shows that among 275 participants, more than half of them (51.6%) utilized health services under the national health insurance program in the last 12 months. Moreover, elderly people who were aware of national health insurance were two and a half times (AOR = 2.53; 95% CI: 1.32-4.86) more likely to utilize health services. Similarly, participants who had experienced some type of illness within the last 12 months were about eleven times (AOR = 11.35; 95% CI: 3.51-36.66) and participants with chronic diseases were about two times (AOR 2.10; 95% CI: 1.04-4.24) more likely to utilize health services under the national health insurance program. Factors that determine the non-utilization of NHI services were not being ill, seeking other services, required services not included in the scheme, hearing bad news about service delivery, long waiting lines in the health facility and bothersome procedure to get treatment.*

***Conclusion***

*A significant proportion of the elderly did not use the health services though enrolled in national health insurance. It is recommended to conduct different awareness activities among this segment of the society. Moreover, immediate attention is needed to expand the package to cover most of the health needs of the elderly population and to modify in service delivery mechanism.*

**Keywords:** Health Service Utilization, National Health Insurance , Elderly Population

## 1. Introduction

Universal Health Coverage (UHC) aims all people have access to promotional, preventative, curative, rehabilitative, and palliative care without the risk of facing financial hardship when they require it. According to World Health Organization (WHO) projections, 400 million people lack access to at least one basic healthcare service globally, and more than 100 million people face catastrophic expenditure at the time of using health care services. The idea of UHC has been supported by the WHO as a key plank for the social protection of health through the use of a fair prepayment and population-based risk pooling system. Thus, the WHO advocated health insurance as a crucial means of financing healthcare in low- and middle-income countries in 2005,

which lessens the direct payment at the delivery point of providing services equitably [1]. The literature suggests that insurance is one of the major protective factor for improving healthcare utilization on the middle-aged and the elderly globally [2-4]. The Interim Constitution of Nepal, adopted in 2007, recognizes health as a fundamental right and declares that every citizen has the right to free basic health care. Barriers to health services must rapidly be addressed by population-level interventions [5]. To achieve the objectives of UHC, the national health insurance policy was enforced in 2014 in response to Nepal's high and rising out-of-pocket costs as well as the government's constrained financial resources [1].

The National Health Insurance Program (NHIP) of the government of Nepal is a national program started in 2014 and initially referred to as a social health security program aimed at enabling citizens access to quality health care services without financial burden. Now the program is running under the Health Insurance Board (HIB). This program attempts to address financial barriers in the utilization of health services and ensures equity and access among poor people and disadvantaged groups to achieve UHC by prepayment and a risk pooling mechanism. A yearly contribution of 35 USD for a family up to 5 members receive a benefit ceiling of 1000 USD ; however, each additional member will require a contribution of 7 USD, and 200 USD will be added to the benefit ceiling for each additional member, bringing the total benefit ceiling per family to 2000 USD. In the same vein, senior people 70 years or above will receive a 100% subsidy on benefits up to an additional 1000 USD [6]. Population aging has become a global phenomenon as a result of decreased fertility and mortality rates as well as better public health efforts [7]. Globally, the population 60 years of age or older is expected to double by 2050, from 962 million in 2017 to 2.1 billion [8]. According to the health perspective, rapid aging indicates that the population's health burden is likely to worsen as older people typically spend a higher percentage of their income on healthcare than other demographic groups [9]. Since the aging population increases the demand for health services, providing them with appropriate health services is one of the key issues of this decade [9,10]. The social, economic, and healthcare systems face significant issues as a result of the aging population. To address these issues, the Government of Nepal has created National Health Policy 2019, the Fifteenth Plan (2019–20 to 2024–25), and the Health Sector's Gender Equality and Social Inclusion (GESI) Strategy that emphasize the importance of a equitable and inclusive healthcare system and make it easier for seniors to get high-quality medical care [11,12].

Elderly people in Nepal are defined as "those who are 60 and above" as per Senior Citizen Act of Nepal. According to the 2021 Census, there are 29.1 million senior individuals in Nepal [13]. Those sixty years of age and above reached 10.12% of the total population [14]. Elderly population brings opportunities and difficulties in terms of social, economic, and cultural aspects for people, families, nations, and the global community [15]. The Government of Nepal provides free health care for senior citizens at government hospitals and health centers and financial subsidies for selected diseases along with 100% subsidy in NHIP. However, knowledge regarding free healthcare and subsidies program among the elderly is limited. Despite the services being available, only half % of the elderly participants utilized the services in the previous year [16]. Thus, it is critical to investigate the barriers that affect access to health services among elderly but there is limited data on health service utilization among insured elderly [17]. By analyzing the factors associated with health service utilization under NHIP, this paper is anticipated to inform policymakers about needed NHIP enhancements, guide resource allocation, and encourage tailored healthcare services for the elderly. It can be beneficial to the effective use of resources to understand how older adults use their health insurance. This can ensure that funds are directed towards services and interventions that are most needed by the elderly population, thus maximizing the impact of health expenditures. Additionally, the findings are valuable for further research and educational initiatives in geriatric care, supporting public health campaigns, and improving community engagement for better healthcare outcomes among the elderly population.Thus, our study aims to assess the health service utilization among the elderly populations enrolled in NHIP in Pokhara, Nepal.

## 2. Materials and Methods

### 2.1. Study Setting, Design and Population

A community based cross-sectional study was conducted in the Pokhara Metropolitan of the Kaski district among elderly people enrolled in NHIP till 15th July 2021. Pokhara is one of Nepal's six metropolitan and provincial headquarter of the Gandaki province. Administratively, it is divided into 33 wards (the lowest administrative unit). Pokhara , a panoramic city located about 200 km west of Kathmandu, the country's capital city with an area of 464.24 sq.km. It is the second most populous city of Nepal after Kathmandu, with total population of 413,934. The total population above 60 years and above residing in the metropolitan was 42,935 [18].

### 2.2. Sample Size and Sampling Procedure

The sample size was calculated using the formula for the cross-sectional survey;

$$\text{Sample Size (n)} = \frac{z^2 pq}{e^2}$$

The proportion of health service utilization among the insured elderly (p) was taken as 76.8% (3), a precision (e) as ±5%, and a standard normal variate (Z) as 1.96 at a 5% significance level. The minimum sample size obtained was 274.

Multi-stage probability sampling was adopted to obtain a sample representative of the metropolitan. In step 1, the entire Pokhara metropolitan was divided into 33 clusters based on the lowest level of administrative units (wards) and 1/3$^{rd}$ of administrative units/clusters (5, 9, 32, 21, 11, 30, 19, 29, 13, 10, and 27) were selected randomly by a simple random sampling. In step 2, since the sampling frame of insured elderly people of each ward was not available, an

equal proportion of participants (25 elderly people) was selected from every selected ward. Hence, the required final sample size was 275. In step 3, the researcher reached the ward office and select the first nearby household that meets the inclusion criteria, and followed consecutive sampling techniques for the remaining households.

### 2.3. Selection Criteria

Individuals aged 60 years and above and must have enrolled in the NHIP till 15th July 2021(31st Asadh 2078) living in the selected wards were included in this study. But individuals who were unable to response i.e. deaf, sick and mentally unstable were excluded from the study.

### 2.4. Operational Definitions

**Health Service Utilization:** Elderly people who had utilized health services from 18th October 2021 to 17th October 2022 (1st Kartik 2078 to 31st Ashwin 2079 at least once a time under the NHIP from the health institutions. And he/she must be enrolled in the NHIP till 15th July 2021 (31st Asadh 2078). It was categorized as yes or no.

**Insured Elderly People:** Individuals above the age of sixty and whoever enrolled in the NHIP till 15th July 2021 (31st Asadh 2078). A valid health insurance membership ID card was checked for evidence of enrolment.

### 2.5. Data Collection Techniques and Tools

Data collection was carried out through face to face interview using a structured interview schedule. The interview was conducted after describing the objectives of the research clearly and taking both the verbal and written consent. Confidentiality was also maintained. Data collection was carried out by the principal author herself from January – February 2023. Tools of data collection were interview schedule. The tools include close ended questions prepared by researchers and supervisors along with extensive review of literature. The outcome variable in this study was the utilization of health services under the NHIP. The Andersen's behavioral model of healthcare utilization was used as a framework for the explanatory variables to predict the factors that facilitate or hinder participants to utilize the health services [19,20]. This model suggests that the utilization or non-utilization of health services is determined by the three key factors: predisposing, enabling, and need factors [21]. The selection of explanatory variables was guided by a review of the literature on the determinants of health services utilization [19-21]. The predisposing factors included were; age, sex, religion, ethnicity, education and family type. The factors such as the main source of income, family support, membership duration, and premium paid were examined as enabling factors. The need factors in this study included past illness experience, the presence of chronic illness, and perceived health status.

### 2.6. Pretesting, Validity and Reliability

Tools were developed in English language and translated into simple and clear Nepali language for ease of administration. To ensure validity of the study, tools were developed based on the reference to various research papers and by consulting with experts [17,20,21]. Pre-testing was done on 10% of the sample size in a homogeneous area excluding the study area to ensure the reliability of the tools and changes were made accordingly. After conducting a pretest, the modified versions of the tools closely resembled to the original forms, with major differences primarily consisting of adjustments in phrasing, grammar, spellings, and the removal of duplicate questions. Data entry was done in EPI-DATA which helps to avoid errors and ensure the data quality.

### 2.7. Data Management and Analysis

The collected data were entered in Epi-data software version 3.1 and analysis was performed with the help of Statistical Package for Social Sciences (SPSS) version 20. Uni-variate, bi-variate and multivariate analyses were done. Descriptive statistics (e.g. frequency/ percentage/ mean/ standard deviation (SD)) were calculated to describe the characteristics of the participants.The normality of the distribution was checked to justify the use of the mean and standard deviation.For bi-variate analysis, Pearson's chi-square test was used to find out the association between dependent and independent variables. The strength of the association of the significant independent variables ($p<0.05$) with the outcome variable was performed with binary logistic regression analysis to calculate the unadjusted odds ratio. This was followed by multivariate logistic regression analysis to calculate the adjusted odds ratio to determine the final predictors after the adjustment of covariates.

### 2.8. Ethical Issues

The study protocol was reviewed and approved by the School of Health and Allied Sciences, Pokhara University, Nepal, and ethical approval was obtained from the Institutional Review Committee (IRC) of Pokhara University (Ref No.80-2079/80) on 9th January,2023.. Prior approval to execute the study was obtained from the office of the Pokhara Metropolitan and Health Insurance Board, Gandaki province. Before the interview, the respondents were briefed on the study's objectives as well as the benefits and risks of participating in the study, and written informed consent was obtained. In addition, all information obtained from the participants was kept confidential. The questionnaire did not include any names or other personal identifiers. Each participant's identity was determined by numerical coding. The participants were informed of their right to refuse to participate in this study as well as their right to withdraw from the interview at any time.

## 3. Results

***Background Information:***

Among 275 participants, the mean age of the participants was 72.87 years with female (57.5%), married (67.6%), and belong to Brahmin/Chhetri ethnicity (59.3%). A greater majority of the participants followed Hindu religion (85.8%) and belong to joint/extended family (73.8%). Moreover, most of them had completed two or more years of membership in health insurance (70.9%). Below half of them (45.1%) were aware of the health insurance under NHIP and paid

their premium by themselves (41.8%). More than four in five participants (82.5%) had an experience of illness in last 12 months whereas more than half of them(63.3%) had suffering from chronic illness. Most of them (87.6%) had public hospital as the first contact point for healthcare (**Table 1**).

| Variables | Frequency (n=275) | Percentage (%) |
|---|---|---|
| Pre-disposing factors<br>Age of participant | | |
| 60-69 years | 98 | 35.6 |
| 70-79 years | 110 | 40.0 |
| 80+ years | 67 | 24.4 |
| Mean ± SD [Min, Max] | 72.87 ± 8.492 [60,100] | |
| **Sex of participant** | | |
| Male | 117 | 42.5 |
| Female | 158 | 57.5 |
| **Ethnicity** | | |
| Dalit | 22 | 8.0 |
| Disadvantaged Janajatis | 22 | 8.0 |
| Relative advantaged Janajatis | 68 | 24.7 |
| Upper caste groups | 163 | 59.3 |
| **Religion** | | |
| Hindu | 236 | 85.8 |
| Buddhist | 33 | 12.0 |
| Christians | 6 | 2.2 |
| **Marital status** | | |
| Married | 186 | 67.6 |
| Unmarried | 1 | 0.4 |
| Widow/Widower | 88 | 32.0 |
| **Educational status** | | |
| Illiterate | 113 | 41.1 |
| No formal education | 87 | 31.6 |
| Basic level (Class 1-8) | 49 | 17.8 |
| Secondary level (9-12) | 18 | 6.5 |
| Bachelor and above | 8 | 2.9 |
| **Family type** | | |
| Nuclear | 72 | 26.2 |
| Joint | 191 | 69.5 |
| **Enabling Factors** | | |
| **Main source of income** | | |
| Agriculture | 61 | 22.2 |
| Business | 54 | 19.6 |
| House rent | 22 | 8.0 |
| Pension | 48 | 17.5 |
| Old age allowance | 27 | 9.8 |
| Foreign service/laborer | 28 | 10.2 |
| Service | 35 | 12.7 |
| **Family support for health service utilization during illness** | | |
| Yes | 264 | 96.0 |
| No | 11 | 4.0 |

| | | |
|---|---|---|
| **Decision taker for health care of participant's *** | | |
| Self | 242 | 88 |
| Partner | 93 | 33.8 |
| Son/daughter in law | 97 | 35.3 |
| Daughter/Son in law | 12 | 4.4 |
| Grand children | 4 | 1.5 |
| Nephew | 1 | 0.4 |
| **Membership duration** | | |
| 1 year | 80 | 29.1 |
| 2 years | 72 | 26.2 |
| 3 years | 55 | 20.0 |
| 4 years | 21 | 7.6 |
| 5 years | 47 | 17.1 |
| **Aware about NHIP** | | |
| Yes | 124 | 45.1 |
| No | 151 | 54.9 |
| **Source of information about NHIP for enrollment*** | | |
| Health workers | 8 | 2.9 |
| Enrollment assistants | 202 | 73.7 |
| Friends/Neighbor's/Relatives | 88 | 32.1 |
| Media | 16 | 5.8 |
| **Premium Paid** | | |
| Self | 115 | 41.8 |
| Government | 160 | 58.2 |
| **Willingness to continue membership (n=115)** | | |
| Yes | 93 | 80.9 |
| No | 9 | 7.8 |
| Should think | 13 | 11.3 |
| **Need factors**<br>**Illness during last 12 months** | | |
| Yes | 227 | 82.5 |
| No | 48 | 17.5 |
| **Chronic diseases** | | |
| Yes | 174 | 63.3 |
| No | 101 | 36.7 |
| **Chronic diseases (n=174)*** | | |
| Hypertension | 123 | 70.6 |
| Diabetes | 53 | 30.4 |
| Asthma | 20 | 11.5 |
| Heart diseases | 25 | 14.4 |
| Thyroid | 15 | 8.6 |
| Kidney disease | 3 | 1.7 |
| Mental diseases | 4 | 2.3 |
| Gastritis | 3 | 1.7 |
| **Perceived health status** | | |
| Good | 154 | 56.0 |
| Poor | 121 | 44.0 |

| Health facility as first contact point | | |
|---|---|---|
| Public | 241 | 87.6 |
| Private | 34 | 12.4 |
| *Multiple Responses | | |

**Table 1: Predisposing, Enabling, and Need Factors for Health Service Utilization**

### 3.1. Status of Utilization of Health Services

About half (51.6%) of participants utilized health services under NHIP in the last 12 months (18th October 2021-17th October 2022). Among 142 (51.6%) participants, who utilized health services, 47.9% utilized health services more than 3 times, and 19.0% of them utilized inpatient services. Moreover, information regarding their experiences during health service utilization was also assessed in the study. Some of them did not get a health service provider in the ward (6.3%) and experienced unfavorable behavior from health workers (9.9%). In addition, the majority of them (45.8%) waited for more than 60 minutes to get the services. Similarly, a significant proportion of participants did not receive some of the required services (21.1%), medicines (40.1%) and were dissatisfied with the services provided under the national health insurance program (40.1%) (**Table 2**).

| Variables | Frequency | Percentage (%) |
|---|---|---|
| **Did you utilize health services under NHIP within the last 12 months?** | | |
| Yes | 142 | 51.6 |
| No | 133 | 48.4 |
| **How many times did you utilize the health services under NHIP? (n=142)** | | |
| 1 time | 38 | 26.76 |
| 2 times | 18 | 12.7 |
| 3 times | 19 | 13.4 |
| More than 3 times | 67 | 47.9 |
| **What type of service did you utilize? (n=142)** | | |
| Inpatient | 27 | 19.0 |
| Outpatient | 115 | 81.0 |
| **How much distance did you travel to get health services under NHIP? (n=142)** | | |
| < 30 minutes | 47 | 33.1 |
| 30-60 minutes | 83 | 58.5 |
| > 60 minutes | 12 | 8.5 |
| Mean ± SD [Min, Max] | 42.15 ± 25.66 [10,120] | |
| **Was the service provider available in the ward?** | | |
| Yes he/she was available | 133 | 93.7 |
| No he/she was not available | 9 | 6.3 |
| **How was the behavior of service providers?** | | |
| Favorable | 103 | 72.5 |
| Average | 25 | 17.6 |
| Unfavorable | 14 | 9.9 |
| How much time did you wait to get the service? | | |
| <30 minutes | 43 | 30.3 |
| 30-60 minutes | 34 | 23.9 |
| >60 minutes | 65 | 45.8 |
| Mean ± SD [Min, Max] | 101.06 ±104.269[0,360] | |
| **Did you receive all the required services?** | | |
| Yes, all required services were received | 110 | 77.5 |
| Some required services were not received | 30 | 21.1 |
| No, all required services were not received | 2 | 1.4 |
| **Did you receive the prescribed medicine?** | | |
| Yes, all prescribed medicines were received. | 71 | 50.0 |

| | | |
|---|---|---|
| Some prescribed medicines were not received | 57 | 40.1 |
| No, all prescribed medicines were not received | 14 | 9.9 |
| **Did you have Out of Pocket Expenditures?** | | |
| Had OOP | 71 | 50.0 |
| Didn't have OOP | 71 | 50.0 |
| **Were you satisfied with the provided services?** | | |
| Satisfied | 85 | 59.9 |
| Not satisfied | 57 | 40.1 |
| **Reason for satisfaction (n=85)*** | | |
| Services are free | 85 | 100.0 |
| Availability of free medicines | 43 | 50.6 |
| Health worker's behavior is favorable | 8 | 9.4 |
| Quality of services is good | 5 | 5.9 |
| **Reason for dissatisfaction (n=57)*** | | |
| Premium is high | 1 | 1.8 |
| Need to wait a long time to get services | 21 | 36.8 |
| No quality services | 13 | 22.8 |
| Health worker's behavior is not favorable | 9 | 15.8 |
| No available health workers | 1 | 1.8 |
| Less priority to the insured people | 9 | 15.8 |
| No sufficient medicines are available | 44 | 77.2 |
| Bothersome procedures to get treatment | 13 | 22.8 |
| Others | 10 | 17.5 |
| *Multiple Responses | | |

**Table 2: Utilization of Health Services Under the National Health Insurance Program (n=275)**

### 3.2. Reasons for Non-Utilization of Health Services Under Nhip

Among 133 (48.4%) those not utilized health services, the major reasons for not utilization of health services under the national health insurance scheme were seeking treatment from usual institutions from where they were getting services in the past (58.6%), not getting ill during the study period (37.6%), required services not included in the scheme (72.2%) and bothersome procedures to get treatment (6.0%) along with not availability of prescribed medicine (6.0%) (Table 3).

| Reasons for not utilizing SHI services | Frequency (n=133) | Percentage (%) |
|---|---|---|
| Sought treatment from usual institutions from where they were getting services in the past | 78 | 58.6 |
| Not getting ill during the study period (No need) | 50 | 37.6 |
| Required services not included in the scheme | 18 | 13.5 |
| Bothersome procedures to get treatment | 8 | 6.0 |
| No sufficient and quality medicines | 8 | 6.0 |
| Heard bad news about service delivery | 6 | 4.5 |
| Long distance to the health facility | 5 | 3.8 |
| Others | 12 | 9.0 |

**Table 3: Reasons for Non-Utilizing Health Services Under NHIP**

### 3.3. Factors Associated With Utilization of Health Services Under Nhip

Bi-variate analysis showed that the age, religion, and educational status of the participant were significant predisposing factors for the utilization of health services under NHIP. Moreover, membership duration, awareness about health insurance, and premium paid emerged as enabling factors in bi-variate analysis. Similarly, illness during the last 12 months, chronic illness, and perceived health status emerged as significant need factors for the utilization health services under NHIP (Table 4).

However, after adjustment of all covariates significant in the bi-variate analysis only three variables were found as

significant factors for the utilization health services among elderly people in Pokhara metropolitan. Regarding enabling factors, respondents who were aware of national health insurance had higher odds (AOR = 2.53; 95% CI: 1.32-4.86) for insurance service utilization. Likewise, in case of need factors, those respondents who had experienced some type of illness in the last 12 months were eleven times more likely (AOR = 11.35; 95% CI: 3.51-36.66) to utilize health services under the NHIP. Additionally, those respondents with chronic diseases were having a higher probability of utilizing health services under the HIP scheme as compared to those with no chronic diseases (AOR 2.10;95% CI: 1.04-4.24) (Table 5).

| Variables | Health service utilization | | $x^2$ value | p-value |
|---|---|---|---|---|
| | Yes (%) 142 (51.6%) | No (%) 133(48.4%) | | |
| **Age** | | | | |
| 60-69 years | 62(63.3) | 36(36.7) | 8.245 | 0.004* |
| 70+ years | 80(45.2) | 97(54.8) | | |
| **Sex** | | | | |
| Male | 63(53.8) | 54(46.2) | 0.398 | 0.528 |
| Female | 79(50) | 79(50) | | |
| **Ethnicity** | | | | |
| Brahmin/Chhetri | 81(49.7) | 82(50.3) | 0.605 | 0.437 |
| Others | 61(54.5) | 51(45.5) | | |
| **Religion** | | | | |
| Hindus | 129(54.7) | 107(45.3) | 6.096 | 0.014* |
| Non-Hindus | 13(33.3) | 26(66.7) | | |
| **Marital status** | | | | |
| Married | 99(53.2) | 87(46.8) | 0.581 | 0.446 |
| Unmarried/Widow/widower | 43(48.3) | 46(51.7)) | | |
| **Educational status** | | | | |
| Informal education | 92(46.0) | 108(54.0) | 9.329 | 0.002* |
| Formal education | 50(66.7) | 25(33.3) | | |
| **Family type** | | | | |
| Nuclear | 34 (47.2) | 38 (52.8) | 0.761 | 0.383 |
| Joint/Extended | 108(53.2) | 95(46.8) | | |
| **Enabling Factors Main source of income** | | | | |
| Agriculture | 26 (42.6) | 35(57.4) | 10.898 | 0.092 |
| Business | 32(59.3) | 22(40.7) | | |
| House rent | 7(31.8) | 15(68.2) | | |
| Pension | 23(47.9) | 25(52.1) | | |
| Old age allowance | 14(51.9) | 13 (48.1) | | |
| Foreign service/laborer | 19(67.9) | 9(32.1) | | |
| Service | 21(60.0) | 14(40.0) | | |
| **Family support for health service utilization during illness** | | | | |
| Yes | 136(51.5) | 128(48.5) | 0.039 | 0.844 |
| No | 6(54.5) | 5 (45.5) | | |
| **NHI membership duration** | | | | |
| 1 year completed | 29(36.3) | 51(63.7) | 10.695 | 0.001* |
| ≥2 years completed | 113(57.9) | 82(42.1) | | |
| **Aware about national health insurance** | | | | |
| Yes | 85(68.5) | 39(31.5) | 25.864 | <0.001* |
| No | 57 (37.7) | 94(62.3) | | |

| | | | | |
|---|---|---|---|---|
| **Premium paid** | | | | |
| Self | 71(61.7) | 44(38.3) | 8.078 | 0.004* |
| Government | 71(44.4) | 89(55.6) | | |
| **Willingness to continue NHIP's membership** | | | | |
| Yes | 62(66.7) | 31(33.3) | 3.426 | 0.194 |
| No | 4(44.4) | 5(55.6) | | |
| Should think | 6(46.2) | 7(53.8) | | |
| Need factors | | | | |
| **Illness during the last 12 months** | | | | |
| Yes | 138(60.8) | 89(39.2) | 43.663 | <0.001* |
| No | 4(8.3) | 44(91.7) | | |
| **Chronic diseases** | | | | |
| Yes | 109(62.6) | 65(37.4) | 22.985 | <0.001* |
| No | 33(32.7) | 68(67.3) | | |
| **Perceived health status** | | | | |
| Good | 69 (44.8) | 85 (55.2) | 6.540 | 0.011* |
| Poor | 73(60.3) | 48(39.7) | | |
| **Health facility as a first contact point** | | | | |
| Public | 122(50.6) | 119(49.4) | 0.802 | 0.370 |
| Private | 20(58.8) | 14(41.2) | | |
| *indicate p<0.05. | | | | |

**Table 4: Association of Variables with Health Service Utilization Under NHIP**

| Variables | UOR (95% CI) | AOR (95% CI) |
|---|---|---|
| **Pre-disposing factors** | | |
| **Age** | | |
| 60-69 years | 2.08* (1.26-3.46) | 1.75 (0.71-4.3) |
| 70+ years | Ref | Ref |
| **Religion** | | |
| Hindu | 2.41*(1.18-4.92) | 1.69 (0.72-3.97) |
| Non-Hindu | Ref | Ref |
| **Educational status of participants** | | |
| Informal education | Ref | Ref |
| Formal education | 2.35* (1.35-4.09) | 1.92 (0.93-3.98) |
| **Enabling factors** | | |
| **Membership duration** | | |
| 1 year fully completed | Ref | Ref |
| 2 or more years fully completed | 2.42*(1.41-4.14) | 1.85 (0.96-3.56) |
| **Aware about national health insurance** | | |
| Yes | 3.59*(2.17-5.93) | 2.53*(1.32-4.86) |
| No | Ref | Ref |
| **Premium paid** | | |
| Self | 2.02*(1.24-3.29) | 1.24 (0.52-2.93) |
| Government | Ref | Ref |
| **Need factor** | | |
| **Illness during period of enrollment in NHIP** | | |
| Yes | 17.05*(5.92-49.12) | 11.35*(3.51-36.66) |

| | | |
|---|---|---|
| No | Ref | Ref |
| Chronic diseases | | |
| Yes | 3.45*(2.06-5.79) | 2.10*(1.04-4.24) |
| No | Ref | Ref |
| Perceived health status | | |
| Good | Ref | Ref |
| Poor | 1.87*(1.15-3.03) | 1.24 (0.66-2.30) |
| *Statistically significant at p-value <0.05 | | |

**Table 5 : Factors Associated with Health Services Utilization Under NHIP**

## 4. Discussion

This study aimed to assess health service utilization among elderly people enrolled in national health insurance in Pokhara Metropolitan and found that just over half of them reported using health services under NHIP in the last 12 months. A significant proportion did not use national health insurance services. The study revealed several reasons for non-utilization of health insurance services, including seeking treatment from usual institutions from where they were getting services in the past, not getting ill during the study period, required services not included in the scheme, and bothersome procedures to get treatment, which was consistent with previous studies conducted in Bhaktapur, Nepal [22].

A previous study from Dhulikhel, Nepal revealed (68%) of older adults using health care services in the last 12 months, similar to some extent to the present study [7]. But, our finding was different from the study conducted in Butwal where there was a higher probability(84%) of utilizing health services among older adults suggesting that health insurance scheme seems to be lacking in its effectiveness. However, a separate study conducted in Bhaktapur and Baglung, Nepal reported, a notable proportion (77.2% and 82.7%) of participants utilized health insurance services, which was almost different from our study [17,22-24]. The reason for this might be due to difference in study population .Similarly, our result differs from the findings of some earlier studies conducted in rural Tanzania and Ethiopia. A higher proportion (76.8%) of the elderly had used outpatient health care services in rural Tanzania [25]. Likewise, a remarkable proportion of participants (82.6%) had utilized health services under the CBHI scheme in Ethiopia [26]. The difference might be attributed due to socio-demographics, time, population and study setting, scheme implementation rule, and quality of health care disparities.Our findings revealed that respondents who were aware of national health insurance were found to be two and half times more likely to utilize health services under the NHIP, supported by the previous study conducted in Pokhara, Nepal where participants enrolled in health insurance were four times more likely to utilize health services. This suggests that awareness on national health insurance is an important enabler of access to health care [17]. This study contradicts the previous studies conducted in Ethiopia, which show that the level of awareness had no significant effect on CBHI service utilization in the scheme [26]. The reason for this contradiction may be due to differences in socio-demographic characteristics and study area. Illness is an important social determinant of health; people with ailments were more likely to use insurance services in China, which supports our result [27]. Those respondents who had experienced some type of illness were about eleven times more likely to use national health insurance services in our study.Similarly, respondents who reported having had a disease in the three months before the survey were significantly more likely to use outpatient and inpatient services in rural areas of Tanzania [3]. It should be noted that illness is likely to be the underlying driving factor for insurance utilization.

Respondents with chronic diseases were about two times more likely to utilize health services as compared with respondents without chronic illnesses. This result was supported by most other studies conducted in China, Nepal, and Korea, which show chronic illness member-ed were more likely to utilize health services [23,28-30]. Our result was also analogous to a previously conducted study in Pokhara and Bhaktapur, Nepal where respondents with multiple chronic conditions were five times more likely to utilize the health services [17,22]. The higher proportion of health service utilization might be due to rising healthcare needs among chronically ill patients.However, a comparative study in Baglung, Nepal and studies from the Community Based Health Insurance (CBHI) program of rural China did not show any association between the presence of chronic illness and health insurance utilization [24,31,32]. This difference might be attributed due to differences in the study population, the time, and the study setting. The outcomes of this study offer valuable insights that can be harnessed to improve the healthcare services to senior citizens who are beneficiaries of national health insurance programs, whether administered at the local, provincial, or national levels. Furthermore, these findings can be leveraged to conduct a comprehensive examination of the influence and outcomes associated with offering free health insurance services to the elderly population. This research can play a pivotal role in shaping policy decisions and practices in the realm of senior citizen healthcare under the purview of the national health authorities.

### 4.1. Strengths and Limitations

So far, there have been only a few studies that have explored the connection between aging and health in Nepal. This study adds value by making it easier to compare our findings

with a previous study in Nepal and with countries that have similar population demographics. Our study provides new insights into national health insurance service utilization among elderly people and the factors affecting it. This not only advances our understanding but also serves as a foundation for future research. Our research can serve as a point of reference for upcoming studies in Nepal.

This study, despite its significant findings, is undoubtedly limited in certain ways. One limitation of this study is its cross-sectional design. Since this study performed cross-sectional analyses, no causal effects could be assumed. The participants self-reported their health status and use of healthcare, hence the data may not accurately reflect the parameters' actual estimations.

There might be a subject to recall bias, as the recall period of utilization of service was 12 months before the interview. Also, there might be sampling bias due to smaller sample size and the sample selection from houses near to ward office which might be different from houses far from ward office.

## 5. Conclusion

This study concluded that half of the elderly people utilized health services under national health insurance. People who were aware on NHIP, who had illness during the last 12 months and suffered from chronic illness were more likely to utilize health services under national health insurance. Even though the government provides free healthcare for the elderly, it doesn't have a meaningful impact as it's challenging for them to access these services. It is recommended that awareness programs should be raised in different wards regarding the knowledge about national health insurance focusing on the geriatric population. Moreover, immediate attention is needed to expand the package to cover most of the health needs of the elderly population and to modify in service delivery mechanism. However,to generalize this finding , mixed study of qualitative and quantitative with large sample size and appropriate sampling is required.

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## Declaration of Interest

No potential conflict of interest was reported by the authors.

## Availability of Data and Material

The data-set we used for this study is available with the corresponding author.

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