



The background, social support and behavioural characteristics associated with health insurance coverage among the older population in Kisii County, Kenya

J. Nyagero¹; R. Gakure²; M. Keraka³; M. Mwangi⁴; P. Wanzala⁴

¹ Institute of Medicine and Infectious Diseases (ITROMID) Jomo Kenyatta University of Agriculture and Technology, Nairobi, Kenya.

² Director, Jomo Kenyatta University of Agriculture and Technology, Nairobi Campus, Kenya

³ Senior Lecturer, Kenyatta University, Department of Public Health, Kenya

⁴ Kenya Medical Research Institute (KEMRI), Center for Public Health Research (CPHR), Kenya

Corresponding author: Josephat Nyagero, PhD Student, Institute of Medicine and Infectious Diseases (ITROMID) Jomo Kenyatta University of Agriculture and Technology, and is also the Research Lead, African Medical and Research Foundation (AMREF), Nairobi, Kenya. Tel: +254 722 301 689 josephatnyagero@yahoo.co.uk or Josephat.Nyagero@amref.org

SUMMARY

Introduction: Universal health coverage has increasingly become the focus for improved health systems worldwide. In Kenya, the older populations are characterized by low health insurance coverage, resulting in either limited access to quality health care services or catastrophic expenditure on health. This paper seeks to assess the background, social support and behavioural characteristics that are associated with being insured among the older population.

Methods: A two-level random cluster sampling technique was used to select two rural sites in Kisii County and 1,104 older persons interviewed. The Pearson chi-square and the adjusted odds ratio at 95% confidence interval computed in the binary logistic regression was used to analyze the data.

Results: Only 5.9% of the older population had been insured. The multivariate regression model found that health insurance coverage was significantly associated with secondary school level of education ($p < 0.001$, AOR 3.68, 95% CI 1.92–7.07), employment history ($p = 0.002$, AOR 2.64, 95% CI 1.43–4.86); being a member of a social welfare group ($p = 0.002$, AOR 3.03, 95% CI 1.51–6.08) and taking of alcohol ($p = 0.050$, AOR 1.85, 95% CI 1.00–3.33).

Conclusion: Health insurance coverage remains low among the older population in rural Kenya. Contrary to previous studies, social support such as from the adult children and relatives do not significantly influence being insured among the older population. There is need to enhance the number of older persons who are insured through strengthened sensitization of social support and health promotion.

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INTRODUCTION

Globally, the provision of health care, especially to the older persons is of a major concern. The Centers for Disease Control and Prevention (CDC) estimates that 58% of Americans had a private health insurance and only 18.2% of the under 65 years were uninsured.¹ The social security and Medicare public health schemes exclusive for the older population, the disabled and low income children and families are available to USA citizens through government support.² More than 8 percent of USA's gross domestic product is used to finance the Medicare health scheme.³ As of 2004 in the UK, 86% of overall health care expenditures were covered by the National Health Service (NHS), with private expenditures covering the remaining 14%.⁴ The UK's National Health Service is a healthcare system funded fully from general taxation that provides health coverage to everyone who usually resides in the UK. In contrast, health insurance coverage in Africa is generally very low.⁵ A study in South Africa showed that 30% of respondents had at least one person in the household owning a health insurance.⁶ It is estimated that 9.8% among the general population in Kenya and 2% for the older population aged 65 or more are insured.⁷ The low health insurance coverage prevails despite efforts by both the government and the private sector to increase the health insurance uptake across the country's population structure. Rwanda is one of the few low income countries that has reached a 90% health-care coverage through implementation of effective community-based health insurance schemes.^{8,9}

The aim of health insurance is to spread financial risk arising from ill-health. Studies have shown that out-

of-pocket payments are a barrier to seeking and accessing of the desired health services.^{10,11} The impact of failure to take health insurance more often results in undesirable, frequent, unplanned and escalating medical bills leading to catastrophic expenditure on health care and early deaths and is more pronounced among the older population.^{5,10} Everyone across the income levels and ages need protection from the monetary risks related with poor health. The situation is expected to worsen with the upsurge in the growth rate for the older population estimated at over 3% in Africa and at 4.2% in Kenya.^{3,12} An aging population puts pressure on the society's capacity to support its older population. The elderly support ratio, the indicator used to measure this pressure has declined overtime from 12 workers for every older population in 1950 to 9 in 2010 globally. In sub-Saharan Africa, the 17 workers for every older person in 2010 is projected to decline to 9 by 2050.⁵

There were 2.6 million older people in Kenya aged 55 years or more in 2009, representing 6.8% of the country's total population.¹² Significant research has been carried out on the determinants of health insurance in the more developed country settings.^{6,13-18} In these studies the background characteristics, social support and behavioural practices have been found to be associated with purchasing of health insurance.⁶ Even then these studies have focused on the general population especially those aged below 65 years. Limited studies have been carried out in Africa to find out the factors associated with the ownership of health insurance, least focusing on the older population.⁶

Based on the foregoing, we hypothesize that the background, social support and behavioural



characteristics of the older population are not associated with the purchase of health insurance among the older population aged 60 years or more. This study specifically aimed at; ascertaining the level of health insurance coverage among the older population, describing the extent to which socio-demographic are associated with health insurance coverage, examining how socio-economic characteristics influence the uptake of health insurance, and establishing the extent to which social support and behavioural characteristics are associated with purchase of health insurance. The generated evidence was pivotal in the design and implementation of the health education intervention activities for increased health insurance coverage targeting the older population in the study area.

METHODS

The study data was obtained from a quantitative cross-sectional baseline survey we conducted as part of the quasi-experimental study designed to develop a model for determining the predictors of health insurance coverage among the older population in Kisii County. Using simple random sampling, two administrative units, namely Kegati location of Kiogoro division and Igemo location of Marani division were selected out of 29 eligible locations and assigned as experimental and control sites respectively.¹⁹ Every household in the selected study sites were visited and screened for the older persons aged 60 or more years. The recruitment of respondents into the study was secured after a written informed consent was made by either signing or thumb printing. The recruitment continued until the desired sample size for population less than was 10,000 was achieved.¹⁹ Face to face interviews were conducted in November/December 2009 where 1,104 older persons responded using a

pre-tested structured interview schedule. The interviews were done in *ekegusii*, the local language. To ensure standardization in the asking of questions, the interview schedule initially developed in English language was translated into *ekegusii* and then back translated to English. A group of research assistants were recruited and briefly but intensively trained on the data collection tool and procedures. Eighty percent of these research assistants had participated in the population census conducted three months preceding this study and were very conversant with the study area and the local language.

The questions covered socio-demographic and economic characteristics (as background characteristics), social support, behavioural and health insurance coverage issues among the older population. *Age* was stated in complete years. *Marital status* was coded as 1) single, 2) married, 3) widowed, 4) separated and 5) divorced. *Religion* was coded as 1) none, 2) Catholic, 3) Seventh-Day-Adventist, 4) others. *Level of education* was coded as 1) none, 2) primary, 3) secondary, 4) college and 5) University. *Employment history* was coded as 1) ever been employed and 2) never been employed. *Occupation* was coded as 1) none, 2) farming, 3) business, and 4) private sector. *Ownership of cash crop* was as 1) none, 2) tea, 3) coffee, 4) tea and coffee. *Monthly income* was stated as an average in Kenya shillings. In terms of social support, *adult children* was stated by use of number and by sex. *Living with adult children* was coded as 1) yes in same homestead, 2) no living away. *Surviving brother/ sister* was coded 1) yes 2) no. Having a close friend was coded as 1) yes, 2) no. *Membership to a social group* was coded as 1) yes 2) no. The behavioural practices of the older population were assessed in terms of: *alcohol use* was coded as



1) drinking alcohol and, 2) not drinking alcohol and *smoking of cigarettes* was coded as 1) a cigarette smoker and 2) not a cigarette smoker. *Health insurance coverage* was captured as a response to two questions, namely; if the respondent had ever owned a health insurance cover in a lifetime and if the respondent currently owned a health insurance. Both questions were coded as 1) yes and 2) no.

During field data collection, the principal investigator cross-checked all filled interview schedules submitted by the research assistants for completeness, accuracy and consistency. A coding manual was developed for the few open-end questions and appropriate codes assigned to individual responses. The data entry and analysed was done using the SPSS version 17.

Statistical analysis: The univariate analysis was used to manipulate all the independent and dependent study variables. The bivariate analysis using the Pearson's chi-square test was undertaken to measure the association between the uptake of health insurance and individual independent variables. The threshold for statistical significance was set at $\alpha = 0.05$ and a two-sided p value at 95% confidence intervals reported for corresponding analysis. The binary logistic regression was then performed where the backward conditional method was specified in order to identify confounders and effect modifiers. The adjusted odds ratios were used to estimate the strength of association between the retained independent variables (parsimonious model) and health insurance coverage.

Ethical issues: Approval was obtained from the National Ethical Review Committee (NERC). In addition, confidentiality was assured by removing all the identifiers prior to data analysis and report writing. Only those eligible persons who gave a written informed consent were recruited for the study, interviewed and followed up. They were assured of their freedom to withdraw at any time during the study period.

RESULTS

Respondent's characteristics: There were 53% females and 47% males in the 1,104 study sample. Their ages ranged from 60–110 years (5 of them were centenarians). The respondents had a mean age of 69 ($\pm 9SD$) years. Almost 3 in every 10 females were married compared to 8 in every 10 of their male counterparts. The 'currently not married' category in Table 1 comprised the widowed, separated and single respondents. A majority (72.6%) of the sample were of Catholic religious faith. The level of education was low, with three-quarters of the females having never ever been to school as opposed to 6 in every 10 of the males who had attained primary school level of education. On employment history, only 5% of the females and 47% of males had ever been employed. Farming was the main occupation with three-quarters of the older population reporting having a cash crop, either tea, coffee or both. Only about 10% declared that they earned an average of at least Kshs. 2,000 per month.



Table 1: Socio-demographic and socio-economic characteristics by gender

	Female		Male		Total (n=1,104)	
	n=586	53.1(%)	n=518	46.9(%)	n	%
Place of Residence						
Kiogoro	286	48.8	273	52.7	559	50.6
Marani	300	51.2	245	47.3	545	49.4
Age						
<65 years	205	35.0	229	44.2	434	39.3
65–74 years	226	38.6	181	34.9	407	36.9
>74 years	155	26.5	108	20.8	263	23.8
Marital status						
Currently married	168	28.7	428	82.6	596	54.0
Currently not married	418	71.3	90	17.4	508	46.0
Religion						
Catholic	437	74.6	375	72.4	812	73.6
Protestant	149	25.4	102	19.7	292	26.4
Level of education						
None	436	74.4	108	20.8	544	49.3
Primary	135	23.0	316	61.0	447	40.5
Secondary and above	94	18.1	15	2.6	109	9.9
Employment history						
Ever employed	28	4.8	243	46.9	271	24.5
Never employed	558	95.2	275	53.1	833	75.5
Current occupation						
None	71	12.1	18	3.5	89	8.1
Farming	500	85.3	460	88.8	960	86.9
Business	13	2.2	28	5.4	41	3.7
Private sector	2	0.4	12	2.3	14	1.3
Have cash crop						
Yes	394	67.2	439	84.7	833	75.5
No	192	32.8	79	15.3	271	24.5
Ave monthly income						
Could not estimate	117	20.0	51	9.8	168	15.2
Less than 1000	352	60.1	269	51.9	62	56.3
1000 – 2000	84	14.3	126	24.3	210	19.0
More than 2000	33	5.6	72	13.9	105	9.5

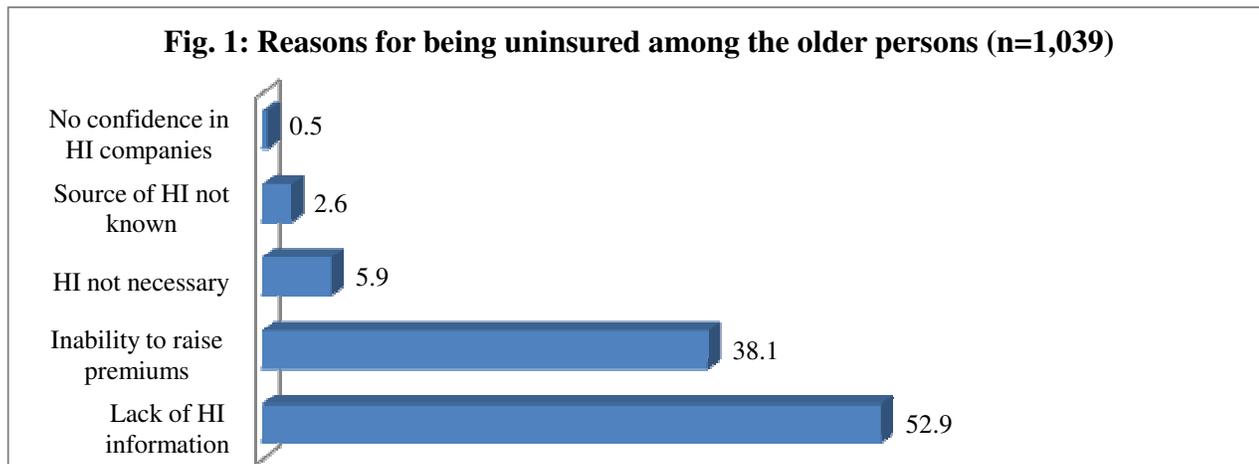
Social support and behavioural practices: Almost all the respondents had at least one adult child. However, the older people confirmed that 46.2% of their adult

children had a steady income and 78.2% lived separate from their adult children. Nine in every 10 older people (88.1%) had either a surviving sister or a

brother and another 90% had a close friend in whom they confided and shared several issues, including those on health. However, only 6.4% were members of a social group and 68.8% expressed the desire to join a social group in future.

Health insurance coverage: The overall proportion of the ever insured older population was reported by 12.9% while the currently insured was declared by 65 (5.9%). The health insurance cover was obtained from two main sources, the National Hospital Insurance

Fund (NHIF) which is a state parastatal, that comprised 52 (4.7%) followed by Majani Chai Insurance Brokers with 13 (1.2%). The uninsured were asked to give reasons for not taking up health cover. As summarized in Figure 1, the responses ranged from lack of information, economic to personal reasons. It was however found that of the uninsured 1,039 older persons, 72.5% were willing to be insured in future.



Factors associated with health insurance coverage:

At bivariate level, there was no significant relationship between being insured and the age, religion and type of occupation of the older population. As shown in Table 2, the place of residence, gender, marital status, level of education, employment history, having a cash crop, and monthly income had significant relationships with being insured ($p < 0.001$). Adjusting for all the exposure factors, the education level of the older persons was significantly associated with being insured ($p < 0.001$, AOR=3.3, 95% CI 1.7 – 6.6). The older persons who had attained secondary and above level of education were 3.3 times more likely to be insured compared to those who had primary or no education. Further, upon adjusting for all exposure factors, ever been employed was significantly associated with being insured ($p = 0.019$, AOR=2.4, 95% CI 1.2 – 4.9). The

older persons who had a history of employment were 2.4 times more likely to be insured compared to those who had no history of employment.

On the social support and behavioural characteristics, the bivariate analysis found no significant association between being insured and the older person's number of adult children, living with someone, having a sister/brother, having a close friend and smoking of cigarettes. There was however a significant relationship between being insured and having adult children with a steady income and being a member of a welfare group. Adjusting for all the exposure factors at multivariate analysis, being a member of a social welfare was significantly associated with being insured ($p < 0.006$, OR=2.7, 95% CI 1.3 – 5.5). The older persons who were members of a social welfare group



were 2.7 times more likely to be insured compared to those who were not members.

Table 2: Being insured in relation to selected socio-demographic, economic, social support and behavioural characteristics

Variables	Owns HI (n=65)		Doesn't own HI (n=1,039)		Bivariate analysis		Multivariate analysis	
	n	%	n	%	OR (95% CI)	p value	AOR (95% CI)	P value
Place of residence								
Kiogoro	43	7.7	516	92.3	2.0(1.2–3.4)	0.011	1.60(0.9–2.8)	0.102
Marani	22	4.0	523	96.0	Reference		Reference	
Sex of respondent								
Male	45	8.7	473	91.3	2.7(1.6–4.6)	<0.001	0.9(0.4–1.8)	0.674
Female	20	3.4	566	96.6	Reference		Reference	
Marital status								
Currently married	50	8.4	546	91.6	3.0(1.7–5.4)	<0.001	1.4(0.7–2.9)	0.355
Not currently married	15	3	493	97	Reference		Reference	
Level of education								
Secondary or higher	27	24.8	82	75.2	8.3(4.8–14.3)	<0.001	3.3(1.7–6.6)	0.001
Primary or none	38	3.8	957	96.2	Reference		Reference	
Ever been employed								
Yes	39	14.4	232	85.6	5.2(3.1–8.8)	<0.001	2.4(1.2–4.9)	0.019
No	26	3.1	807	96.9	Reference		Reference	
Have cash crop								
Yes	57	6.8	776	93.2	2.4(1.14–5.1)	0.022	1.5(0.6–3.6)	0.361
No	8	3	263	97	Reference		Reference	
Ave monthly income								
No estimate	5	3	163	97	0.2(0.1–0.6)	0.003	0.8(0.2–2.6)	0.693
Less than 1000	27	4.3	594	95.7	0.3(0.2–0.6)	<0.001	0.8(0.4–1.8)	0.579
1000 – 2000	19	9	191	91	0.7(0.3–1.4)	0.244	1.3(0.6–2.8)	0.604
>2000	14	13.3	91	86.7	Reference		Reference	
Children with steady income								
At least one adult child	57	6.8	780	93.2	2.4(1.1–5.4)	0.021	0.6(0.3–1.3)	0.160
None	8	3.0	259	97.0	Reference		Reference	
Social welfare member								
Yes	18	25.4	53	74.6	7.1(3.9–13.1)	<0.001	2.7(1.3–5.5)	0.006
No	47	4.5	986	95.5	Reference		Reference	
Take alcohol								
No	48	8.0	555	92.0	2.4(1.39–4.35)	0.002	2.17(1.11–4.35)	0.023
Yes	17	3.4	484	96.6	Reference			

Binary logistic regression was used to model health insurance coverage (0 = not insured, 1 = insured) using 10 candidate predictor factors, namely; place of residence, sex, marital status, education, ever been employed, having a cash crop, average monthly income, having adult children with a steady income, being a member of a welfare group and taking of alcohol. These factors had independent significant association with being insured at bivariate analysis. Nine successful iterations were performed using ‘backward conditional’ method in order to eliminate confounders and effect modifiers. Four factors were identified to be independent predictors of being insured. The resulting parsimonious model is presented in Table 3 and shows the adjusted odds ratio with respect to 95% confidence interval and p value for each of the factors significantly associated with the older persons.

Adjusting for other factors, secondary or higher level of education was significantly associated with being insured among the older population ($p < 0.001$, AOR=

3.68, 95% CI 1.92 – 7.07). An older person with secondary or higher level of education was 3.68 times more likely to be insured compared to one with none/primary level of education. History of employment was significantly associated with being insured among the older population ($p = 0.002$, AOR= 2.64, 95% CI 1.43 – 4.86). An older person with a history of employment was 2.64 times more likely to be insured. Membership to a social welfare group was significantly associated with being insured among the older persons ($p = 0.002$, AOR= 3.03, 95% CI 1.51 – 6.08). An older person who was a member of a social welfare was 3.03 times more likely to be insured compared to one that was uninsured. The behavioural practice was that of taking alcohol, which had a borderline significant association with being insured ($p = 0.050$ AOR=1.9; 95% CI 1.0–3.3). This means that the older people who were not taking alcohol were 1.9 times more likely to own a health insurance cover compared to those who drank alcohol.

Table 3: Logistic regression model predicting being insured using education, employment history, social welfare member and taking of alcohol

Variable	Multivariate analysis			
	AOR	95% CI of AOR		p value
		Lower	Upper	
Level of education				
Secondary or higher	3.68	1.92	7.07	<0.001
Primary or none	Reference			
Ever been employed				
Yes	2.64	1.43	4.86	0.002
No	Reference			
Social welfare member				
Yes	3.03	1.51	6.08	0.002
No	Reference			
Take alcohol				
No	1.85	1.00	3.33	0.050
Yes	Reference			



DISCUSSIONS

The higher proportion of females in the sample is consistent with the slightly higher life expectancy and survival rate among older women in society. This is confirmed in the State of Kenya Population report which states that a female at 55 years old in Kenya was anticipated to live for another 24 years compared to the male's 18.4 years in the same age group.¹² It is therefore not surprising to have more female than male representation in this study sample population of 60 years and more. Further, the finding that the females were less likely to be in a current marital union than their male counterparts was a result of the latter's tendency to re-marry upon the death of their spouses, with the female opting for a life of widowhood. The female had a comparatively much lower level of education than the male, signifying the substantial discrimination against education of girls at the time. This finding confirms the result of a study by the Federation of Women Lawyers that the Kenyan women and girls were historically subjected to structural discrimination by practice, custom and law in several spheres of their lives – especially in education, employment and the political arena.²⁰ This situation has however drastically changed with almost an equal gender school enrolment in the county being achieved.

The study has some limitations. First, the study targeted the older population a few of whom wouldn't provide precise responses to some questions especially on their ages mainly due to memory lapse and recall. In such situations close relatives were requested to assist estimate their ages. Second, the study was based on personal behaviours such as alcohol drinking and cigarette smoking which were not verified. We had to fully rely on the respondents' responses. Third, the study used data generated from

a cross-sectional survey which by design limits the inferences that one can draw on causality.

The level of the study's insured among the older population of 5.9% compared favourably with the 2 – 8.4% among the older population aged 50 years or more in Kenya.⁷ The proportion is however below the national level of 9.1 – 9.8% for the general population.^{5,7} For universal access to health care to be achieved among the older population, concerted effort must be put in place to increase the enrolment of the older population into health insurance schemes in the country.

Ever had education, ever been employed, being a member of a welfare group and not taking alcohol were the four background, social support and behavioural characteristics found to be associated with being insured among the older population. It confirms previous studies that the highly educated were more ready than their lowly educated counterparts to purchase a health insurance cover.^{10,13-16} This could be attributed to a positive relationship between a person's educational level and propensity to acquire skills, stock of knowledge, earnings and a positive attitude to avoid the risk of catastrophic medical expenditures.¹⁴

Among the older population, employment history and one's income level upon retirement in concert have been found to determine the probability of one being insured. The Kenya Household Health Expenditure and Utilization Survey Report of 2007 reported highest health insurance coverage occurring among those in the fourth and fifth wealth index quintiles and quintiles of household expenditures.⁷ An older person with employment history was more likely to continue with premium payments of the previous employer–



sponsored health cover. Other studies have however confirmed that retirement weakens the ability of the now self-employed older people to pay their cover contributions.¹⁵

Social support refers to the qualitative evaluations of relationships, both positive and negative. Social support has been found to determine acquisition of health insurance at three levels. First, through the number of surviving adult children who based on family systems and in more collective societies were obligated to support the older persons. This is in terms of correct information and financial assistance to secure the health insurance.¹⁶⁻¹⁸ This was not confirmed in the present study. The second level of support is the family in general, both the nuclear and extended that provide care which is crucial to the health and psychological well-being of the older population.^{20,21} The third level of social support is having close friends. The likelihood of reporting no close friends or confidants increased with age and role changes. This account was attributed to the older person's increasing isolation because of retirement, mobility limitation, and death of friends and loved ones.²² Interventions that can build on alternative close friends include church members and social groups for example of age mates. Such emerging new centres of association can be used as a source of encouragement and sustenance of increased health insurance uptake. In this baseline study, number of surviving adult children, having a brother/sister and a close friend were not associated with being insured. This probably was as a result of low levels of awareness on the importance of health insurance among the adult children the other relatives.

On behavioural practices, drinking of alcohol has been confirmed as a predictor factor of being insured.^{6,23} The drinking of alcohol, especially the local brew, was common practice among the older population in the study area. However, once fully enforced, the recently enacted Alcoholic Drinks Control Act, 2010 that endeavours to regulate the brewing and consumption of alcohol, commonly known as the "Mututho Law" in Kenya will play a pivotal role in regulating the use of alcohol including among the older persons.²⁴ The final effect may result in an improved environment for the older population to choose purchasing of health insured as a means of the older persons' accessing quality health care services on demand.

A deliberate effort was made to measure the association between sex and marital status as demographic characteristics associated with being insured. Previous studies confirmed that the male was more likely to own a health insurance than a female.² A significant association was however not confirmed in the present study, although a higher proportion of the male were insured than their female counterparts. On marital status, studies have found a statistically significant positive effect on health insurance ownership with the married persons in the general population being more likely to have insurance cover than those who are single, separated or divorced.^{14,26,27} This was not the case in the present study probably because the older persons do not have a higher demand for health insurance to protect their children who are now adults and independent, and no higher combined income as a vast majority are widowed.



CONCLUSION AND RECOMMENDATIONS

The older persons are often less educated, poor, engaged in farming, have no history of formal employment, but have potential for increased social support. The male older persons have remained married unlike their female counterparts. Being insured is low among the older population. The lack of information on health insurance, inability to raise insurance premiums and the perception that health insurance is unnecessary were the main reasons for the older population being uninsured. The multivariate regression model attests that being insured among the older population was associated with secondary school level of education, a history of employment, being a member of a social group and not taking alcohol. The hypotheses that being insured was not associated with the socio-demographic, socio-economic, social support and behavioural characteristics of the older persons are not valid.

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