

NUTRITION AND HEALTH STATUS ASSESSMENT OF GERIATRIC PEOPLE OF ONE RURAL DISTRICT IN NEPAL

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ABSTRACT

Aging is an inevitable process, old age cannot be healed. It can only be protected, promoted and extended by adding quality to life. To explore the health and nutrition status of geriatric people that need to be accommodated in future priority health programme of Nepal this cross sectional study was done in two selected rural VDCs of Rupandehi District of Nepal. In this study out of a total of participants (n=364) 9.0% were severely underweight, 15.5% were underweight and 24.5% were malnourished. Three hundred and sixteen (85.9%) participants had health problems, which were mainly respiratory diseases, hypertension and diabetes mellitus. Among the participants, 22.3% had problem for activities of daily living (AODL) and 50.8 % had cognitive impairment. The nutritional status appeared to decline with advancing age and both the genders were equally susceptible to malnutrition. Nutritional status of elderly was not found to be associated with health problems, alcohol intake, literacy and cognitive impairment, whereas it was found to be associated with smoking and compromised daily activities. The findings of this study help to fill the gap in health and nutritional measures that address the needs of this group of people in Nepal.

KEYWORDS

Elderly people, health status, nutritional status

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INTRODUCTION

In recent years, there has been a sharp increase in the number of old people worldwide, mostly as a consequence of declining fertility, improved health care facilities and reduced mortality rates in later life. Globally the proportion of elderly, defined as aged 60 years or over, has risen from 8% in 1950 to 11% in 2007, and is expected to reach 22% in 2050. By 2025, the number of elderly worldwide is expected to reach more than 1.2 billion, with about 840 million of these in low-income countries.^{1,2} Rapid demographic aging is a growing public health issue in many low- and middle-income countries (LAMICs). According to the 2011 census, conducted by the Central Bureau of Statistics of Nepal, the population of people aged 60 years and above, called senior citizens was 2.15 million, accounting for 8.1 percent of Nepal's total population of 26.5 million.

Geriatric population forms a significant proportion of our total population and this group of people is vulnerable to multiple physical, mental and social problems. Hence, various factors affecting the overall health of the elderly need special consideration. Nutrition is an important determinant of health across all ages including aging group. Nutritional status has increasingly been associated with a variety of morbid conditions including cancer, heart disease and dementia among in persons over the age of 65. The overwhelming health problems among this group of people will need to be tackled by concerned individuals, communities and governments. Programmes should be designed and implemented specifically to meet the needs of these people, to address the factors that bring detrimental impact in health of elderly people and to improve their health status. Because of limited information about nutrition and health status in this group in Nepal, programmes are lacking to address the problem in this group.

With this background, to explore the association of health (physical and cognitive) and nutritional status of elderly people this study was carried out. The findings might help to fill the gap in health measures that address the needs of this group of people in Nepal.

MATERIALS AND METHODS

Study population: Elderly people above 65 years who were not ill and bed ridden

Study design: A Community based Cross Sectional study

Study Place: Two VDCs (Bhagawanpur and Ekala) of Rupandehi District, Lumbini

Sample size: The respondents above 65 years old people were selected according to proportionate sampling technique and first respondent from each ward was selected with pen drop sampling method and then snow ball sampling technique was used.

The sample size was 380 in order to allow estimation of a typical dementia prevalence of 4.5% (SE 0.9%) with 80% power. Here prevalence of dementia is used from India.³ All community-resident individuals aged 65+ years that were not ill and bed ridden were eligible for inclusion. Using a process of full household enumeration, all residents aged 65+ years within catchment areas were approached by means of door-knocking and a reliable informant was required for inclusion. Being younger than 65 years was the only exclusion criteria, and weighted sampling procedures were not applied.

Study period: This study was done within a period of six months (November 2017 to April 2018).

Data Collection:

Data was collected by trained interviewers by face to face interview technique with the preparation of interview schedule and necessary pretesting.

Standardized assessments of physical health, and cognitive function were carried out with standardized interview tool.³

Nutritional status assessed with anthropometric measurements of height using measurement tape and weight using adult weighing machine and calculated body mass index (BMI).

Data Analysis:

Collected data analyzed through SPSS version 16. Data analyses were done with chi-square test.

Data collection tools:

Questionnaire for interview (Quantitative) and monitoring supervision checklist

Ethics Statement:

Written informed consent, or witnessed oral consent in case of illiteracy, or next of kin written agreement in case of difficulty in understanding/speak was obtained from all participants.

Ethical approval for this study was taken from Institutional review committee of Nepalese Army Institute of Health Science.

RESULTS

Among 380 sample participants, information from 364 participants was included for analysis as the remaining didn't give complete information. Among the study population, majority were males 233 (64.4%) and 129 (35.6%) were females; majority (73%) were in young old age group (64-74) years and 5.5% oldest old group (75-84) years. Majority (79%) were farmers in past, maximum (65.9%) didn't have formal education, 76.6% were from joint family and 92.5% were living with children as shown in Table 1. In the present study, out of a total of 364 participants 33 (9.0%) were severely underweight, 57 (15.5%) were underweight while 51 (13.9%) were overweight and 20 (5.4%) were obese as depicted

in table 2.⁸ 85.9% had health problems, mainly of respiratory, hypertension and diabetes mellitus. Among the participants, 22.3% had problem for daily activities (AODL) and 50.8 % had cognitive impairment, mainly of subjective memory.

The nutritional status of elderly assessed in relation to their age as shown in table 3 depicts that nutritional status declined as the age advanced, however this was not found to be statistically significant ($\chi^2=12.008$, P value 0.445). The assessment of nutritional status of elderly in relation to gender

as shown in table 4 showed no statistically significant difference ($\chi^2=4.05$, P value 0.398). The nutritional status of elderly in relation to literacy was not statistically significant ($\chi^2=7.15$, P value 0.848) as shown in table 5. In the present study nutritional status assessment of elderly population in relation to health problems is tabulated in table 6. It is seen that majority of the malnourished (underweight and severely underweight) had no health problems. No statistically significant difference (Chi square value - 8.069; df-4; P value= 0.089) was observed between the groups.

Table 1: Socio demographic characteristics of the participants

Characteristics	n=364	%
Age group		
<64 years	15	4.1
Young old (64-74)	265	73
Old old (75-84)	63	17.4
Oldest old (85 and above)	20	5.5
Sex		
Male	233	64.4
Female	129	35.6
Ethnicity		
Brahmin	135	37.5
Chhetry	49	13.6
Newar	13	3.6
Others	53	14.7
Tharu	101	28.1
Dalit	9	2.5
Past Occupation		
Farmer	286	79
Business	32	8.8
Service (Govt.)	24	6.6
Service (Pvt.)	10	2.8
Others	10	2.8
Educational status		
No formal education	240	65.9
Primary education	81	22.3
Secondary education	34	9.3
Tertiary education	9	2.5
Family		
Nuclear	64	17.6
Joint	278	76.6
Extended	21	5.8
Staying with children		
With children	337	92.50
Without children	27	7.50

Table 2: Distribution of different parameters of Participants

Parameters	n	%
Nutritional status as assessed by BMI (<i>BMI < 16.0 kg/m², Severely Underweight ; BMI < 22.0 kg/m², underweight; BMI > 27.0 kg/m², overweight</i>).		
Severely Underweight	33	9.0
Underweight	57	15.5
Normal	197	53.5
Overweight	51	13.9
Obese	20	5.4
Health problems (self reported)		
Absence	52	14.1
presence	316	85.9
Difficulty in Daily activities(AODL)		
No	275	74.7
Yes	82	22.3
Cognitive Problem (Selective memory impairment)³		
No	176	47.8
Yes	187	50.8

Among the 364 study participants, most 286 (79.8%) did not consume alcohol and also majority 218 (60.8%) did not smoke. (Table 7 and 8) On assessing the nutritional status of elderly in relation to alcohol intake and smoking, statistically significant difference ($\chi^2=2.3$; df-4; P value= 0.681) was not found for nutritional status with respect to alcohol intake whereas statistically significant difference ($\chi^2=32.87$; df-4; P value= 0.000) was found for nutritional status with respect to smoking habit. (Fig. 1 and 2)

The assessment of nutritional status of elderly in relation to daily living activities (AODL) as shown in Table 7 showed a statistically significant difference ($\chi^2=28.43$; df-4; P value= 0.000) where maximum malnourished (underweight (26.4%) and severely underweight (16.9%) elderly people have difficulty for daily activities. Whereas association between nutritional status and cognitive impairment was found not to be statistically significant (Table 8) which suggests that nutritional level did not influence the cognitive status of elderly people.

There is not enough evidence to reject the null hypothesis.

Table 3: Distribution of nutritional status in relation to Age groups

Age group	Nutritional Status					Total
Category	Severely Underweight (%)	Underweight%	Normal%	Overweight%	Obese%	
<64 years	2(13.3)	1(6.6)	9(60)	3(20)	0	15
Young old (64-74)	21(8.0)	44(16.8)	137(52.4)	41(15.7)	18(6.8)	261
Old old (75-84)	6(9.8)	8(13.1)	39(63.9)	6(9.8)	2(3.2)	61
Oldest old (85 and above)	4(20.0)	4(20.0)	11(55.0)	1(5.0)	0	20
Total	33	57	196	51	20	357

Chi square value - 12.008; df-12; P value= 0.445

Table 4: Distribution of nutritional status in relation to gender

Gender	Nutritional Status					Total
Category	Severely Underweight	Underweight	Normal	Overweight	Obese	
Male	18	37	125	38	11	229
Female	15	20	71	13	8	127
Total	33	57	196	51	19	356

Chi square value - 4.057; df-4; P value= 0.398

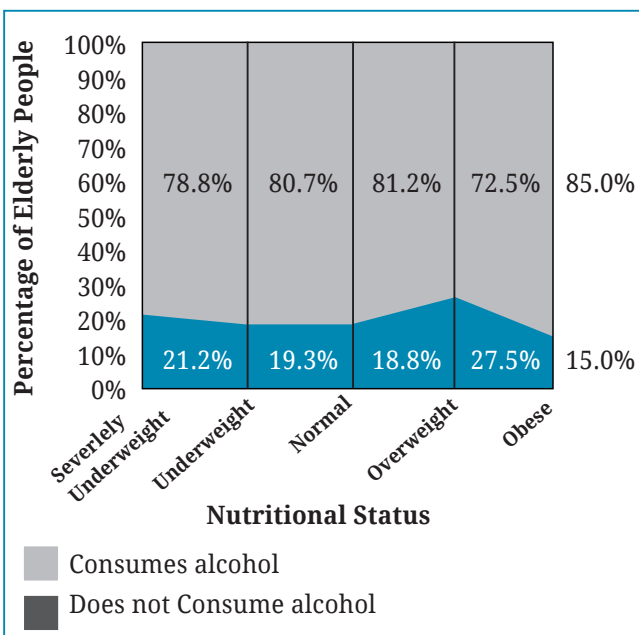


Fig. 1: Distribution of nutritional status in relation to alcohol intake (P value= 0.681)

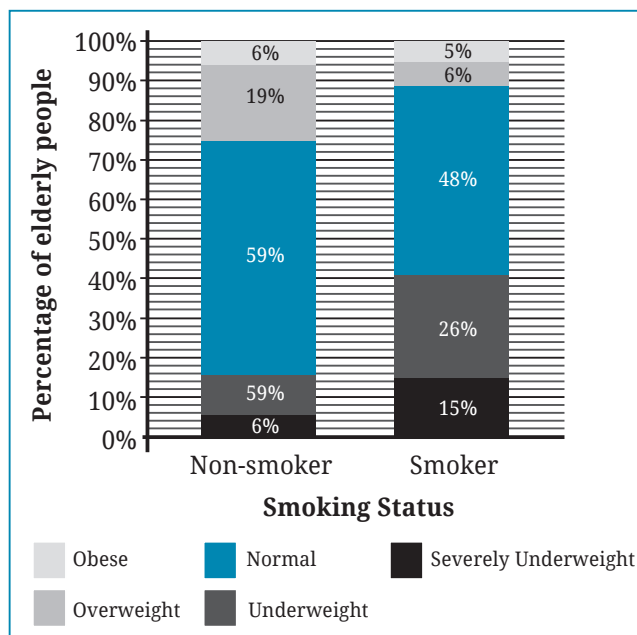


Fig. 2: Distribution of nutritional status in relation to smoking (P value= 0.000)

Table 5: Distribution of nutritional status in relation to literacy

Literacy	Nutritional status					Total
Category	Severely Underweight	Underweight	Normal	Overweight	Obese	
No formal education	23	40	132	30	11	236
Primary education	6	13	44	11	6	80
Secondary education	3	3	16	8	3	33
Tertiary education	1	1	5	2	0	9
Total	33	57	197	51	20	358

(P value= 0.848)

Table 6: Distribution of nutritional status in relation to health problems

Health problems Category	Nutritional Status					Total
	Severely Underweight	Underweight	Normal	Overweight	Obese	
Without health problem	6 (12.8%)	11 (23.4%)	27 (57.4%)	3 (6.4%)	0 (0.0%)	47
With health problem	27 (8.7%)	46 (14.8%)	170 (54.7%)	48 (15.4%)	20 (6.4%)	311
Total	33 (9.2%)	57 (15.9%)	197 (55.0%)	51 (14.2%)	20 (5.6%)	358

Table 7: Distribution of nutritional status in relation to difficulty in AODL

Difficulty in AODL Category	Nutritional Status					Total
	Severely Underweight	Underweight	Normal	Overweight	Obese	
No	15 (6.1%)	30 (12.1%)	144 (58.3%)	39 (15.8%)	19 (7.7%)	247
Yes	18 (16.9%)	28 (26.4%)	48 (45.3%)	11 (10.3%)	1 (0.9%)	106
Total	33 (9.3%)	58 (16.4%)	192 (54.5%)	50 (14.2%)	20 (5.6%)	353

*AODL= Activities of daily living
Chi square value -28.43; df-4; P value= 0.000

Table 8: Distribution of nutritional status in relation to Cognitive impact

Cognitive impact Category	Nutritional Status					Total
	Severely Underweight	Underweight	Normal	Overweight	Obese	
No SMI	12 (6.9%)	26 (14.9%)	99 (56.6%)	28 (16.0%)	10 (5.7%)	175
With SMI	21 (11.5%)	31 (16.9%)	98 (53.6%)	23 (12.6%)	10 (5.5%)	183
Total	33 (9.2%)	57 (15.9%)	197 (55.0%)	51 (14.2%)	20 (5.6%)	358

*SMI=Selective memory impairment (P value= 0.523)

DISCUSSION

Aging is an inevitable process, old age cannot be healed. It can only be protected, promoted and extended by adding quality to life.

In the present study out of a total 364 participants 33 (9.0%) were severely underweight, 57 (15.5%) were underweight. That means 24.7% were malnourished. This finding was similar as in study done by Ghimire S team in Nuwakot,⁸ whereas study done by Singh in old age homes of Kathmandu showed only 15.5% malnourished elderly people,⁹ and study done by Lyons in Pharping showed 31%.¹⁰ Study done in Bangladesh in 2015 showed 50% chronic energy malnutrition among elderly people.¹¹ In study conducted in Iran by Aliabadi M *et al* showed 12.0 % malnourished out of total elderly population of 1962.¹² Similar institution based study also indicates that the prevalence of malnutrition ranges from 5-10% in free-living elderly to 30-85% in homebound, nursing home, and hospitalized elderly.^{13,14} Whereas study done by Crogan NL15 showed 38.6% malnourished.

There are many factors which determine the nutritional status of elderly people evidenced with aging.^{16,17} In the present study the nutritional status declines with the advancing age and both the

genders are equally susceptible to malnutrition. In addition nutritional status of elderly is not found to be associated with health problems, alcohol intake, literacy and cognitive impairment, whereas found to be associated with smoking,^{18,19} and daily activities, which shows that smoking needs to control to maintain good nutritional status among elderly and also for maintain daily activities by own self maintenance of good nutritional status is very important. However Boscatto *et al*, study presents more malnourishment among respondents who had negative physical health conditions such as suffering from hypertension (18.8%) and diabetes (19%).

Geriatric nutritional assessment should be integrated into a comprehensive geriatric assessment. The social security scheme meant for the elderly needs to be more effectively implemented at the community level which in turn can influence their nutritional status and health outcomes. Assessment of the nutritional status regularly followed by early interventions will improve the health outcomes, prevents the onset of disability, improves quality of life and saves healthcare costs.

Early identification of the nutritional status would help to implement required interventions on time

which will help to prevent different morbidity conditions due to poor nutritional status. This in turn will bring overall healthy elderly population in future.

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