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ASSESSMENT OF THE NUTRITIONAL STATUS OF THE ELDERLY IN A MUNICIPALITY, MORANG, NEPAL

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Abstract

Elderly is defined as the age 60 years or above. 'Elderly' is the crucial period of life where people is needs increase and this period is also the neglected period. By 2050 the world's population of elderly people will be doubled. Malnutrition is also increasing among elderly day by day. The objective of this study is to assess the nutritional status of the elderly. A descriptive Cross sectional study based on the quantitative approach was used in this study. The structured interview schedule of the mini nutritional assessment tool and anthropometric measurement was used to collect data among 56 elders in the population using non-probability purposive sampling method. The study was analyzed through SPSS version 24 using descriptive statistics (frequency and percentage). The study revealed that most (89.3%) of the respondents were having normal nutritional status, 10.7% of respondents were at risk of malnutrition and the prevalence of malnutrition. Elderly are more vulnerable to developing malnutrition. Considerable numbers of elderly people were at risk of malnutrition. The study suggested providing extra care, diet enhancement, and regular follow ups, health education regarding nutritional and balancing diets.

Keywords: *Assessment, Elderly, Nutritional status*

Introduction

'Elderly' is defined as the age above 60 years. Aging is a natural phenomenon and an inevitable process. During the aging process, the human body goes through the various mechanism and changes in anatomical and physiological functions (Khan et al., 2023). By 2030, 1

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in 6 people in the world will be aged 60 years or over. At this time the share of the population aged 60 years and over will increase from 1 billion in 2020 to 1.4 billion. By 2050, the world's populations of people aged 60 years and older will double (2.1 billion). The number of persons aged 80 years or older is expected to triple between 2020 and 2050 to reach 426 million (World Health Organization, 2022). Nutritional status is very important component to maintain good physical and psychological well-being for elderly. As the elderly are more susceptible to degenerative diseases, the nutritional and health problems of the elderly varies (Shuremu et al., 2023).Various factors such as age >70 years, female gender, educational status, occupation, smoking and alcohol consumption, death of spouse/ not married, non-nuclear family, sedentary lifestyle, impaired cognition, depression, >2 chronic diseases etc. also influence the nutritional status of elderly (Sa et al., 2023). Most nutritional intervention programs are directed toward infants, young children, adolescents, and, pregnant and lactating mothers. However, nutritional interventions could play a vital part in the prevention of degenerative conditions of the elderly and an improvement of their quality of life (Agarwalla et al., 2015). The populations of 60 years or above are 10.21% of whole population which increased by 8.1% from the 2011 census (National population and housing census, 2021).

There were a significant association between age and nutritional status of the elderly and no significant association sex and nutritional status found. As the elderly got older day by day, they became more malnourished. The nutritional status of the elderly who were malnourished was 15.5% and at risk of malnutrition were 61% (Singh & Shrestha, 2016). Thus, the aims of the study were to assess the nutritional status among elderly.

Methods

A descriptive Cross sectional study was conducted to assess the nutritional status of elderly. The study setting was Sundarharaicha municipality- 7 which situated in Morang district of Koshi Province. The study population was all the population who aged 60 or above who were available at the time of data collection was included by using non-probability purposive sampling method. People who cannot hear and speak and who were seriously ill and cannot take the anthropometric measurement were excluded from the study. Sample size was calculated

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using Cochran's formula. Sample size was calculated with 90 % confidence interval level and 10% margin of error, some people may refuse or are unavailable so 10% non-response rate was added to the total sample size, sample size was calculated as:

p=24.9% = 0.249 (Sharma et al., 2020)
q=1-0.249 = 0.751
Z=90% confidence interval= 1.64
d=10%=0.1 (allowable error)
Then, estimated sample size (ss);
$= Z^2\ pq/d^2$ $= (1.64 \times 1.64 \times 0.249 \times 0.751)/ (0.1) \times (0.1)$
$= 0.50295/0.01$ $= 50.295 = 51$

Thus calculated sample size was adjusted for non-response. Considering non-response rate as 10%. 5.1=5 So, the sample size was 56.
Mini nutritional assessment tool and anthropometric measurement were used for data collection. The instrument was divided into two sections Part I: Consists of questionnaire related to socio-demographic variables, substance abuse related personal variables and health related variable of the respondents. Part II: Consists of questionnaire related to assessment of nutritional status of elderly. Which was classified as

- Less than 17: Malnourished
- 17-23.5: Risk of malnutrition
- 24-30: Normal nutritional status (Meriç et al., 2022).

Content validity was established by extensive literature review, consulting with research advisors, statistician, subject matter experts and valuable suggestion from peers. The instrument was pre-tested among 10% of population at Sundarharaicha municipality-7, Morang which were excluded from the real study. The materials which were required for the survey are as follows:

Weighing machine: A weighing scale with capacity of 100 kg was used.
Non stretchable measuring tape: A non-stretchable measuring tape was used to measure height, mid upper arm circumference and calf circumference.
Questionnaire: A well designed, mini nutritional assessment tool and pretested set of questionnaire was used to collect information on socio-

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demographic, personal habits and health related information and nutritional status of elderly.

Anthropometric measurement

Weight: Weight was measured to the nearest 100 grams (0.1kg) using a weighing scale, after calibrating it to zero, and after removal of shoes, excess clothing, take off heavy belt and empty out the pocket. Weighing scale was placed on flat and firm surface.

Height: Height was measured in centimeter (cm) using non-stretchable measuring tape up to an accuracy of 0.5 cm. Respondents were instructed to stand on an even or flat and firm floor surface. Respondents were advised to remove their shoes/slippers and stood up straight with heels together, while heels, buttocks and shoulders pressed against the wall. Arms were hanged freely with palms while facing the thighs. A scale was placed at top of head and then measurement was taken.

Mid upper arm circumference: Mid upper arm circumference was measured in centimeter (cm) using non-stretchable measuring tape up to an accuracy of 0.5 cm. Respondents were asked to bend their non-dominant arm at the elbow at a right angle with the palm up. Distance between the acromial surface of the scapula and the olecranon process of the elbow on the back of the arm was noted. Mid-point between the two was marked with the pen. Measuring tape was positioned at the mid-point on the upper arm and tightened snugly.

Calf circumference: Calf circumference was evaluated in centimeter (cm) using non-stretchable measuring tape up to an accuracy of 0.5 cm. Respondents were asked to be seated with the left leg hanging loosely or standing with their weight evenly distributed on both feet. Respondents were later asked to roll up the trouser to uncover the calf and the tape was wrapped around the calf at the widest part.

Data collection was done only after getting formal administrative approval from Nepalgunj Nursing Campus and formal permission from Sundarharaicha municipality-7 Morang. Prior to data collection, the objective of the study was explained to the respondents and informed written consent was obtained. The respondents were assured for confidentiality of information given by them and only used for research purpose and respondent was make assured that they can withdraw from the participation at any time if they want. Precaution was taken

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throughout the study in every step to safeguard rights and welfare of all respondents. The duration of data collection was two weeks from 2079/11/7 to 2079/ 11/ 21. The collected data was analyzed by using descriptive statistics (frequency & percentage) SPSS version 24.

Results

Table 1: *Socio-demographic Characteristics of the Respondents (n=56)*

Variables	Number	Percent
Age		
Young old	27	48.2
Middle old	21	37.5
Oldest old	8	14.3
Sex		
Male	34	60.7
Female	22	39.3
Ethnicity		
Dalit	3	5.4
Janajati	13	23.2
Madhesi	-	-
Muslim	-	-
Brahmin/Chhetri	40	71.4
Religion		
Hindu	45	80.4
Buddhist	11	19.6
Types of family		
Nuclear	9	16.1
Joint	47	83.9
Marital status		
Married	42	75
Widower/ widow	14	25
Educational status		
Illiterate	33	58.9
Literate	23	41.1
If literate		
Can read and write	5	8.9
Basic level	8	14.3
Secondary level	7	12.5
University level	3	5.4
Occupation		
Business	1	1.8

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Agriculture	31	55.4
Not working	24	49.8
Family income status		
Enough for less than 6 months only	4	7.1
Enough for more than 6 months but less than one year	17	30.4
Enough for one year	30	53.6
Enough for more than 1 year and surplus	5	8.9

Table 1 shows that almost half (48.2%) of respondents were aged young old. Majority (60.7%) of the respondents were male. Majority (71.4%) of the respondents were belongs to Brahamin/ Chhetri ethnicity. Most (80.4%) of the respondents were follows the Hindu religion. Most (83.9%) of the respondents were lived in joint family. Most (75%) of the respondents were married. More than half (58.9%) of the respondents were illiterate. More than half (55.4%) of the respondents were involved in agriculture. More than half (53.6%) of respondents were having family income of enough for one year.

Table 2: *Respondents Personal Characteristics related to Substance Use (n=56)*

Variables	**Number**	**Percent**
Smoking		
Current smoker	8	14.3
Past smoker	5	8.9
Non smoker	43	76.8
Tobacco consumption		
Current tobacco consumer	5	8.9
Past tobacco consumer	3	5.4
Non tobacco consumer	48	85.7
Alcoholism		
Current alcoholic	9	16.1
Past alcoholic	6	10.7
Non alcoholic	41	73.2

Table 2 shows that most (76.8%) of the respondents were non-smoker. Most (85.7%) of the respondents were non tobacco consumer. Majority (73.2%) of the respondents were non-alcoholic.

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Table 3: *Health related Status of the Respondents (n=56)*

Variables	Number	Percent
Chronic diseases		
Hypertension	10	47.6
Diabetes mellitus	5	23.8
Asthma	5	23.8
Heart disease	1	4.8
Chronic kidney disease	-	-

Table 3 shows that nearly half of (47.6%) of the respondents who were suffering from chronic diseases having hypertension whereas 4.8% were suffering from heart disease.

Table 4: *Screening of Nutritional Status of the Respondents (n=56)*

Variables	Number	Percent
Declined food intake over past three months		
Severe decrease	1	1.8
Moderate decrease	11	21.4
No decrease	44	78.6
Weight loss during last three months		
Weight loss greater than 3 kg	-	-
Does not know	2	3.6
Weight loss between 1 and 3 kg	8	14.3
No weight loss	46	82.1
Mobility		
Bed or chair bound	-	-
Able to get out of bed/chair, but does not go out	1	1.8
Goes out	55	98.2
Psychological stress or acute disease in the past three months		
Yes	7	12.5
No	49	87.5
Neuropsychological problems		
Severe dementia or depression	1	1.8
Mild dementia	-	-
No psychological problems	55	98.2
Body mass index (BMI)		
BMI less than 19	2	3.6
BMI 19 to less than 21	9	16.1
BMI 21 to less than 23	12	21.4
BMI 23 or greater	33	58.9

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Table 4 shows that most (78.6%) of the respondents were had no decrease in food intake over last three months. Most (82.1%) of the respondents had no weight loss during last three months. Almost all (98.2%) of the respondents had normal mobility. Most (87.5%) of the respondents had no any psychological problem or acute disease in last three months. Almost all (98.2%) of the respondents had not having any neuropsychological problems. More than half (58.9%) of the respondents were having body mass index equal or greater to 23 and least (3.6%) of respondents were body mass index less than 19.

Table 5

Assessment of Nutritional Status of the Respondents (n=56)

Variables	Number	Percent
Lives independently		
Yes	56	100
No	-	-
Takes more than three prescription drugs per day	5	8.9
Yes	51	91.1
No		
Pressures sore or skin ulcers	1	1.8
Yes	55	98.2
No		
Full meal does the patient eat daily	-	-
One meal	36	64.3
Two meals	20	35.7
Three meals		
Selected consumption marker for protein intake	11	19.6
One yes	38	67.9
Two yes	7	12.5
Three yes		
Consume two or more servings of fruits or vegetables per day	55	98.2
Yes	1	1.8
No	-	-
Fluid consumed per day	3	5.4
Less than 3 cups	53	94.6
3 to 5 cups		
More than 5 cups	-	-
	-	-

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Mode of feeding	56	100
Unable to eat without assistance		
Self-fed with some difficulty	-	-
Self-fed without any problem	3	5.4
Self view of nutritional status	53	94.6
Views self as being malnourished		
Uncertain of nutritional status	2	3.6
Views self as having no nutritional problem	2	3.6
Comparison of health status with similar age	32	57.1
group	20	35.7
Not good		
Does not know	1	1.8
Good	3	5.4
Better	52	92.8
Mid arm circumference (MAC) in cm		
MAC less than 21 cm	4	7.2
MAC 21 to 22 cm	52	92.8
MAC greater than 22 cm		
Calf circumference (CC) in cm		
CC less than 31 cm		
CC 31 or greater		

Table 5 shows that cent percent (100%) of the respondents were lived independently. Almost all (91.1%) of respondents were not take more than three prescribed medicine. Almost all (98.2%) of the respondents had no any pressure sore or skin ulcer. Majority (64.3%) of the respondents were eat two full meals in a day. Majority (67.9%) of the respondents were consuming at least two selected protein marker. Almost all (98.2%) of the respondents were consume two or more serving of fruits or vegetable per day. Almost all (94.6%) of the respondents were consume more than 5 cups of fluid per day. Cent percent (100%) of the respondents were fed by self without any problem. Almost all (94.6%) of respondents were views self as having no any nutritional problem. More than half (57.1%) of respondents were compare their health as good with similar age group. Almost all (92.8%) of respondents were had mid arm circumference greater than 22 cm. Almost all (92.8%) of respondents were had calf circumference equal or greater than 31 cm.

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Table 6: *Level of Nutritional Status of Respondents (n=56)*

Variables	Number	Percent
Normal	50	89.3
At risk of malnutrition	6	10.7
Malnourished	-	-
Total	56	100

Table 6 shows that most (89.3%) of the respondents were had normal nutritional status.

Discussion

The findings of the study revealed that, almost half (48.2%) of respondents were young old, majority (60.7%) of respondents were male. The study also shows that almost half (47.6%) of the respondents who were suffering from chronic disease were suffering from hypertension. The study shows that most (78.6%) of the respondents were had no decrease in food intake over last three months, most (82.1%) of the respondents were had no weight loss during last three months, almost all (98.2%) of the respondents were had normal mobility, most (87.5%) of the respondents were had no any psychological problem or acute disease in last three months almost all (96.4%) of the respondents were had not having any neuropsychological problems, more than half (58.9%) of the respondents were had body mass index equal or greater to 23, cent percent (100%) of the respondents were lived independently, almost all (91.1%) of respondents were not took more than three prescribed medicine, almost all (98.2%) of the respondents had no any pressure sore or skin ulcer, majority (64.3%) of the respondents were eat two full meals in a day, majority(67.9%) of the respondents were consume at least two selected protein marker, almost all (98.2%) of the respondents were consume two or more serving of fruits or vegetable per day, almost all (94.6%) of the respondents were consume more than 5 cups of fluid per day, cent percent (100%) of the respondents were fed by self without any problem, almost all (94.6%) of respondents were views self as having no any nutritional problem, more than half (57.1%) of respondents were compared their health as good with similar age group, almost all (92.8%) of respondents were had mid arm circumference greater than 22

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cm, almost all (92.9%) of respondents were had calf circumference equal or greater than 31 cm.

This study is contradictory with the study conducted by Palanivel et al. (2020) showed that 21.4% of respondents were malnourished and 32.65% were at risk of malnutrition (Palanivel et al., 2020). Likewise, a study conducted by Khan et al. (2023) showed that 21.4% of respondents were malnourished and 32.6% were at risk of malnutrition. Similarly, a study conducted by Joymati et al. (2018) showed that 20.8% of respondents were malnourished and 49.2% were at risk of malnutrition. A study conducted by Sharma et al. (2020) showed that 24.9% of respondents were malnourished and 44.9 % were at risk of malnutrition. Also a study conducted by Ghimire et al. (2017) showed that 24% of respondents were malnourished and 65% were at risk of malnutrition.

The possible reason for contradiction with previous study can be limited sample size and study done in only one area with purposive sampling technique.

Conclusion

Elderly people are at risk of malnutrition. The elderly were suffering from one or more types of chronic disease, high blood pressure being common in both sexes. Medical conditions and low literacy rates were twice as likely the cause of malnutrition

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References

Agarwalla, R., Saikia, A., & Baruah, R. (2015). Assessment of the nutritional status of the elderly and its correlates. *Journal of Family and Community Medicine*, *22*(1), 39-43. https://doi.org/10.4103/2230-8229.149588

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ISSN: 1813-222 ©March 2025
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Ayushree, B.R.A., Biswal, R., Munda, M., Udgata, Jyotirmayee., & Bhoi, B. (2023). An
assessment of nutritional status of elderly in Bolangir district of Odisha: a community based study. *International Journal of Community Medicine and Public Health/International Journall of Community Medicine and Public Health*, *10*(9), 3226–3230. https://doi.org/10.18203/2394-6040.ijcmph20232682

Ghimire, S., Baral, B. K., & Callahan, K. (2017). Nutritional assessment of community-dwelling older adults in rural Nepal. *PLOS ONE*, *12*(2), e0172052. https://doi.org/10.1371/journal.pone.0172052

Irawati, D., Ekawanti, A., & Josafat, A. (2020). Nutritional profile in Indonesian elderly subpopulation. *JKKI: Jurnal Kedokteran Dan Kesehatan Indonesia/JKKI (Jurnal Kedokteran Dan Kesehatan Indonesia)*, *11*(2), 121–129. https://doi.org/10.20885/jkki.vol11.iss2.art4

Jamil, N.F., Salih, A.A., Sadiq, M.A., Shaker, S.H. (2021). Assessment of nutritional status of elderly people in Baghdad. *Annals of the Romanian Society for Cell Biology,* 25 (1), 4457-4465.

Joymati, O., Ningombam, M., Rajkumari, B., & Gangmei, A. (2018). Assessment of nutritional status among elderly population in a rural area in Manipur: community-based cross-sectional study. *International Journal of Community Medicine and Public Health*, *5*(7), 3125. https://doi.org/10.18203/2394-6040.ijcmph20182660

Khan, N., Mujahid, S., Ahmed, U., Batool, A., Mustafa, W., Ijaz, D., Saeed, A. (2023). Nutritional assessment of elderly population from rural areas of Punjab by using mini nutritional assessment tool. *Riphah Journal of Allied Health Sciences*, 2 (1), 16-21.

Meriç, Ç. S., Yabanci Ayhan, N., & Yilmaz, H. Ö. (2022). Assessment of Nutritional Status of Elderly Receiving Home Health Care. *Aging Medicine and Healthcare*, *13*(2), 65–71. https://doi.org/10.33879/amh.132.2021.04025

Mohammed, F. R., & Abdulwahid, H. S. (2022). Assessment of Old Age Nutritional Status at Geriatric Home in Al- Diwaniyah City. *Pakistan Journal of Medical and Health Sciences*, *16*(3), 1023–1025. https://doi.org/10.53350/pjmhs221631023

National Population and Housing Census. (2021).

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LWATI: A Jour. of Contemp. Res.
ISSN: 1813-222 ©March 2025
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https://censusnepal.cbs.gov.np/results

Palanivel, R. S., Jeevithan, S., Shanmugapriya, D., & Padmavathy, L. (2020). Nutritional status assessment among elderly population in a rural area of South India. *International Journal of Community Medicine and Public Health, 7(7),* 2760. https://doi.org/10.18203/2394-6040.ijcmph20203011

Sa, N.M., Suman, G., Rajan B. (2024). Assessment of nutritional status and influencing factors among elderly in Mathikere, urban Bengluru Karnata of India. *International Journal of Nutrition Sciences, 9 (1),* 56-61.

Sahni, B., Mir, L., Langeh, S., Kalotra, A., Bala, K. (2022). Assessment of nutritional status of community- dwelling older adults in rural North India using mini nutritional assessment- short form. *Medical Journal of Dr. D.Y. Patil Vidyapeeth, 16(2),* 213-219. https://doi.org/10.4103/mjdrdypu.mjdrdypu_114_21

Sharma, N., Marahatta, S. B., & Khanal, S. (2022). Nutritional Status of Elderly Population at Gokarneshwor Municipality, Kathmandu. *International Journal of Health Sciences and Research*, *12*(4), 98–109. https://doi.org/10.52403/ijhsr.20220412

Shuremu, M., Belachew, T., & Hassen, K. (2023). Nutritional status and its associated factors among elderly people in Ilu Aba Bor Zone, Southwest Ethiopia: a community-based cross-sectional study. *BMJ Open*, *13*(1), e067787. https://doi.org/10.1136/bmjopen-2022-067787

Singh, D., & Shrestha, S. (2016). Nutritional status of senior citizens living in old age homes of Kathmandu metropolitan municipality. *International Journal of Community Medicine and Public Health*, 1707–1715. https://doi.org/10.18203/2394-6040.ijcmph20162032

World Health Organization. (2022). *Ageing and health.* https://www.who.int/news-room/fact-sheets/detail/ageing-and-health

World Health Organization. (2024). *Malnutrition.* https://www.who.int/health-topics/malnutrition#tab=tab_1