

Original Article

Nutritional Status and Quality of Life among Geriatric Patients in a Tertiary Care Hospital

Suzana Malek Tinu¹, Rahnuma Parveen², Monjurul Haque³, Rubina Yasmin⁴

Abstract

Background: Wellbeing of the elderly population in terms of their health and nutritional status are often ignored and unidentified in the community. This study was aimed at assessing the nutritional status of the geriatric patients and their quality of life (QOL) attending OPD of Mugda Medical College Hospital.

Method: This survey was conducted in the OPD of Mugda Medical College Hospital from June to December 2022 through a cross-sectional analytical method. The study tools were the Mini-Nutritional Assessment tool and WHOQOL-BREF questionnaires which were used to observe the level of nutrition and quality of life among geriatric population respectively.

Result: Of all the respondents, about half (46%) were at risk of malnutrition and about 28% were malnourished while 26% respondents' level of nutrition was normal. About 62% respondents had poor QOL, whereas, 31% had fair QOL and only 7% had good QOL. Also, nutritional status and quality of life of the elderly had significant relationship.

Conclusion: The impact of poor nutrition on the quality of life and physical ability of geriatric population is remarkably worthy of attention. The ageing process is challenging and raises public health concerns. Reduction of the observed prevalence of malnutrition and thereby upgrading the quality of life of elderly population should be more focused on and proper attention to this issue is crucial in the community as well as national level.

Key words: geriatric, nutritional status, quality of life

DOI: <https://doi.org/10.3329/jom.v25i1.70523>

Copyright: © 2024 Tinu SM. This is an open access article published under the Creative Commons Attribution-Non Commercial-No Derivatives 4.0 International License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited, is not changed in any way and it is not used for commercial purposes.

Received: 1.12.2023;

Accepted: 14.12.2023

Introduction:

The number of aging populations is rising sharply worldwide and it is estimated that this continuous increase will be more in the future. With age as dietary intake is gradually

decreasing, geriatric people are always at risk of malnutrition. Especially among hospitalized elderly patients, malnutrition affects a considerable part and even worsen the hospitalization.¹ Nutritional status are important determinants of health among the elderly and related with their quality of life (QOL).²

In the year 2019, over 13 million people in Bangladesh had age >60 years which comprises 8% of the country's total population. As expected, this proportion will rise to almost 36 million (21.9%) by the year 2050. This means that there will be a senior citizen for every five citizens in our country.³ A nationwide cross-sectional study in Iran reportedly showed the effect of poorer nutrition leading to poorer standard of living. That survey also ascertained that undernourished

1. Assistant Registrar, Medicine, Mugda Medical College Hospital, Dhaka
2. Junior Consultant, Medicine, Mugda Medical College Hospital, Dhaka
3. Associate Professor, Medicine, Mugda Medical College Hospital, Dhaka
4. Professor & Head Department of Medicine, Shaheed Tajuddin Ahmad Medical College, Gazipur.

Corresponding author: Dr. Suzana Malek Tinu, Contact No.01675029043, Email: suzana.tinu23@gmail.com.

senior citizens had substandard mental and physical aspects of QOL in comparison to their well-nourished as well as at-risk counterparts.⁴ Several studies reported that malnutrition and health-related quality of life among elderly group of people are inversely related with each other.⁵⁻⁸

There are several factors contributing to the risk of malnutrition among elderly people. Nutritional consumption is often reduced among them. Particularly those with acute and chronic ailment nutritional deficiencies are extensive, and a low dietary intake along with catabolic effects of disease itself leads to development of malnutrition. Among geriatric patients poor outcome is associated with malnutrition.^{9,10} Risk of malnutrition increases with aging, a factor affecting quality of life and malnutrition.

There are several studies focusing nutritional status and health related QOL among elderly population in Bangladesh¹¹⁻¹³ but few emphasized on geriatric patients. Mugda Medical College & Hospital is a tertiary care center, as with increasing age co-morbidity rises, so many geriatric patients pay regular visit there. Considering this, the surveillance work was done aiming at evaluation of the nutritional level and quality of life among geriatric patients with a view to generate evidence both for the physicians and policy makers to focus on health condition of this deprived age group.

Methods

This Hospital based cross-sectional study was conducted in outpatient setting, in the department of Medicine of Mugda Medical College Hospital, Dhaka from June to December 2022. The geriatric patients attending OPD were enrolled with total sample size of 74 by purposive convenient sampling method. To be eligible, participants had to be of age ≥ 60 years and patients with disseminated malignancy and advanced CLD and CKD were excluded.

The Mini-Nutritional Assessment (MNA)¹⁴ tool by the Nestle Nutrition Institute was adapted to measure nutritional status, whereas the WHOQOL-BREF Questionnaire by WHO¹⁵ was used to stratify the quality of life of the study population. The questionnaire was translated in Bangla and then was again back translated to main content validity of the questions. A face-to face interview with the respondents was organized. Demographic data, history and comorbidities of the participants were noted. All information was recorded on semi-structured questionnaire.

After collection of all the required data, these were checked, verified for consistency and tabulated using the SPSS/PC 22.0 software. Differences in baseline characteristics were compared using both the student t-test and the Pearson chi square test.

The Ethical Review Committee of Mugda Medical College approved this study. The participants were informed about the objectives of the study and that participation was voluntary. Confidentiality was maintained, while written consent was taken from each respondent prior to data collection.

Results

Majority of the respondents were aged more or equal to 71 years old (56.8%), though the mean age was 69.84 ± 4.66 SD years. Also, most of them were male (60.8%), resided at rural area (60.8%) and religious believe was mostly Islam (77%). According to educational status, most of the respondents had below SSC education (43.2%), illiterate (12.2%) and graduation and above (8.1%). Most of the respondents were unemployed (43.2%) and monthly family income was between 10000-20000tk (50%) (Table 1).

Table 1: Distribution of socio-demographic information of participants (n =74).

Variable	Frequency (n=74)	Percentage (%)
Age (year)		
60-70	32	43.2
≥ 71	42	56.8
Mean \pm SD of age	69.84 \pm 4.66	
Gender		
Male	45	60.8
Female	29	39.2
Residence		
Rural	16	21.6
Urban	58	78.4
Religion		
Islam	57	77
Hindu	13	17.6
Others	4	5.4
Educational status		
Illiterate	9	12.2
Below SSC	32	43.2
SSC	11	16.2
HSC	15	20.3
Graduate and above	8	8.1
Occupation		
Retired govt employee	8	10.8
Non-govt employee	12	16.2
Business holder	3	4.1
Housewife	19	25.7
Unemployed	32	43.2
Monthly family income (tk)		
<10000	13	17.6
10000-20000	37	50
20000-40000	17	23
>40000	7	9.5

DM was mostly found (31.1%) among respondents including HTN (25.7%), IHD (14.9%), COPD (8.1%), HF (5.4%) and stroke (2.7%) (Figure-1).

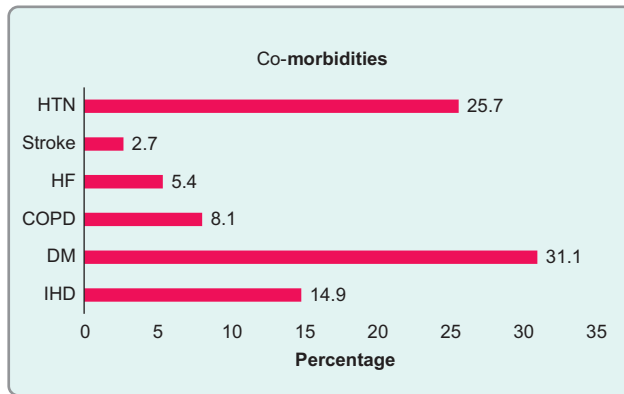


Figure-1: Distribution of co-morbidities of respondents (n=74)

Nutritional status was estimated by Mini Nutritional Assessment (MNA) tool with 18 questions with maximum 30 points, which included anthropometric measurement and general assessment. Almost half of the respondents (45.9%) were in risk for malnutrition (scoring 17-23.5 out of 30) and about 28.4% had malnutrition (score <17). Other 25.7% had normal nutritional level (score 24-30). (Figure 2).

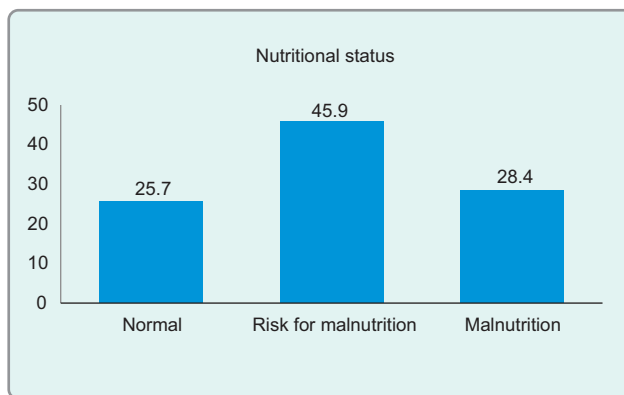


Figure-2: Distribution of nutritional status of respondents (n=74)

Age had significant relation with nutritional level, as most of the respondents were more than or equal to 71 years among at risk/malnutrition group (63.6%). However, gender, residence and religion had no statistical difference with nutritional level. Though, occupational status had no statistical relation with nutritional status, monthly family income had. Respondents with at risk/malnourished nutritional status had mostly monthly income between 10000-

20000tk (63.6%). Diabetes mellitus had significant association with nutritional status of respondents, having most of the DM among at risk/malnourished respondents. Other co-morbidities had no significant statistical difference (Table 2).

Table-2: Association of age, socio-demographic information and co-morbidities with nutritional level of respondents (n=74)

Variables	Normal n=19(%)	At risk/ malnourished n=55(%)	P-value*
Age (year)			0.042
60-70	12(63.2)	20(36.4)	
≥71	7(36.8)	35(63.6)	
Gender			0.431
Male	13(68.4)	32(58.2)	
Female	6(31.6)	23(41.8)	
Residence			0.108
Rural	7(36.8)	32(58.2)	
Urban	12(63.2)	23(41.8)	
Religion			0.282
Islam	14(73.7)	43(78.2)	
Hindu	5(26.3)	8(14.5)	
Others	0	4(7.3)	
Occupation			0.073
Retired govt employee	4(21.1)	4(7.3)	
Non-govt employee	4(21.1)	8(14.5)	
Business holder	2(10.5)	1(1.8)	
Housewife	2(10.5)	17(30.9)	
Unemployed	7(36.8)	25(45.5)	
Monthly family income (tk)			0.001
<10000	5(26.3)	8(14.5)	
10000-20000	2(10.5)	35(63.6)	
20000-40000	9(47.4)	8(14.5)	
>40000	3(15.8)	4(7.3)	
Co-morbidities			
DM	2(10.5)	21(38.2)	0.025*
IHD	1(5.3)	10(18.2)	0.172*
COPD	0	6(10.9)	0.328**
HTN	6(31.6)	13(23.6)	0.548**
Heart failure	1(5.3)	3(5.5)	>0.999**
Stroke	0	2(3.6)	0.613**

*Chi-square test and ** Fisher’s Exact test were done

Assessment of Overall Quality of Life where the pre-designed questionnaire by WHO, The WHOQOL-BREF was used which considered six domains of the quality of life of individuals i.e. physical, psychological, environmental, social

relationships, levels of independence and spirituality. According to the median value of overall QOL facet in WHOQOL-BREF, about 46 (62.2%) respondents had poor QOL, where, 23 (31.1%) had fair QOL and only 5(6.8%) had good QOL. No respondents reported excellent QOL according to WHOQOL-BREF (Figure 3).

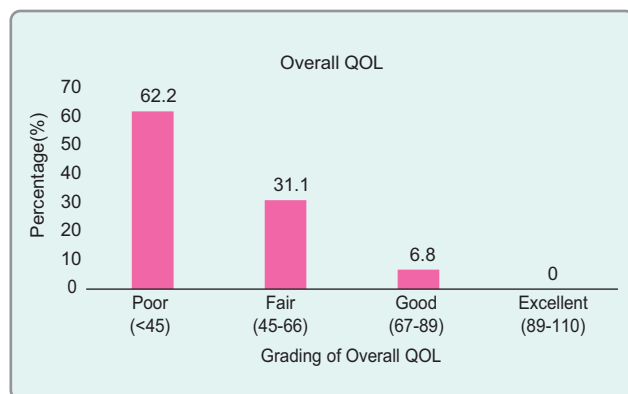


Figure-3: Distribution of quality of life of the respondents (n=74)

Assessment of health-related quality of life of respondents by WHOQOL-BREF questionnaire is. Overall QOL scoring profile showed the mean of overall QOL, physical health, psychological health, social relationship and environmental QOL were 42.23±32.82, 43.58±18.21, 45.55±18.21, 34.23±18.43 and 39.94±15.36 respectively (Table 3).

Table-3: Assessment health-related quality of life of respondents by WHOQOL-BREF questionnaire (n=74)

Quality of life variable	Minimum	Maximum	Mean	SD
Overall QOL	0	100	42.23	32.82
Physical health	7.14	75	43.58	18.21
Psychological health	8.33	79.17	45.55	19.17
Social relationship	0	75	34.23	18.43
Environmental QOL	15.63	68.75	39.94	15.36

Fig-4 showed strong correlation between nutritional statuses of respondents with overall QOL. All those who had good QOL, had normal nutritional status (100%). And, most of those with poor QOL had risk for malnutrition (54.3%) and had malnutrition (45.7%) and no respondent had normal nutrition Also, respondents with fair QOL had mostly normal nutrition (60.9%) and rest had risk for malnutrition (39.1%), but no respondent had malnutrition.

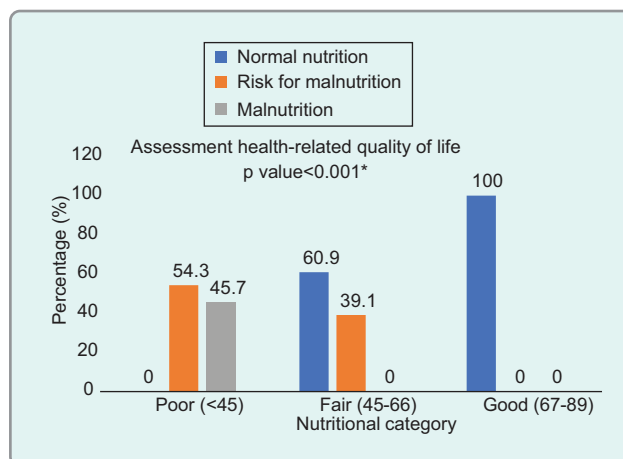


Figure-4: Assessment health-related quality of life of respondents by WHOQOL-BREF questionnaire with nutritional status of respondents (n=74)

*Fisher’s exact test was done and percentage was calculated among QOL category.

Discussion:

The nutritional status of geriatric population is important in healthy aging to maintain healthy, long and functional lives and to halt the progression of chronic disease.¹⁶ Nutritional decline leads to increased susceptibility to infections, severity of diseases, average hospital stay, duration of complete recovery of the disease process, dependence on multiple daily medications, and dependence in activities of daily living (ADL).¹⁷

To assess the nutritional status, the Mini Nutritional Assessment (MNA) is considered as a useful tool that is standard and validated.¹ According to the MNA score, this study found almost half of the respondents (45.9%) in risk for malnutrition and about 28.4% had malnutrition. This findings corresponded with Vidya PL, Usha G, Krishnaswamy B. as the prevalence of malnutrition in elderly patients was 31.3%, those at risk of malnutrition was 54.8%. However, only 25.7% had normal nutritional level in this study, whereas those normally nourished was 13.9% in the above mentioned study.¹⁸

According to the socio-demographic status of this study, majority of the respondents were aged more than and equal to 71 years old (56.8%), with a mean age of 69.84±4.66SD years. The age range of the participants was 65–90 years with the mean age was 70.5 ± 5.2 years and 61.0% were male which was similar to other studies.²¹ Age group and monthly family income of respondents had significant relation with nutritional level, as most of the respondents were more than or equal 71 years among at risk/malnutrition

group (63.6%) which was similar to El Osta et al., as age of respondents had significantly related to nutritional level.²⁰ Respondents with at risk/malnourished nutritional status had mostly monthly income between 10000-20000tk (63.6%). However, gender, residence, religion, occupation and educational status had no statistical difference with nutritional level.

Co-morbidities in older age also effects in nutritional status. In this study, DM was mostly found (31.1%) among respondents including HTN (25.7%), IHD (14.9%), COPD (8.1%), HF (5.4%) and stroke (2.7%). Diabetes mellitus had significant association with nutritional status of respondents, where, mostly had DM among at risk/malnourished respondents, similar to Vidya PL, Usha G, Krishnaswamy B.¹⁸

The WHO Quality of Life Assessment for Older Adults (WHOQOL-OLD) was originally developed by the WHOQOL group for the investigation of quality of life in older adults, as the QOL decreases with older age.²² The mean of overall QOL, physical health, psychological health, social relationship and environmental QOL in this study were 42.23±32.82, 43.58±18.21, 45.55±18.21, 34.23±18.43 and 39.94±15.36 respectively. Wong et al., also showed relatively higher physical health mean score of 70.83 ± 12.69, and a lower environmental mean score of 61.98 ± 13.76.²³ According to the overall QOL in WHOQOL-BREF, about 46 (62.2%) respondents had poor QOL, where, 23 (31.1%) had fair QOL and only 5(6.8%) had good QOL. No respondents reported excellent QOL according to WHOQOL-BREF in this study. It was also similarly seen in study of Sharma et al., that 48.2% of participants had good quality of life whereas 51.8% of them had poor quality of life.¹⁹ It might be due to, geriatric population in our country could not receive proper facilities and treatment as per their requirements.

Also, those with good QOL, all had normal nutritional status (100%). However, those who had poor QOL were mostly had risk for malnutrition (54.3%) and malnutrition (45.7%), but no normal nutrition respondents. Also, respondents with fair QOL had mostly normal nutrition (60.9%) and rest had risk for malnutrition (39.1%), but no malnutrition respondents. This findings were similar to previous study, as nutritional status was significantly associated with QOL domains ($p < 0.001$).¹⁹ So, the elderly who had impaired nutritional status, compared to the normal nourished elderly, was significantly differed in the QOL domain.

Conclusion:

Almost half of the study population was at risk for malnutrition and about one fourth were malnourished.

Participants of seventh decade of life and with diabetes mellitus were at risk/malnourished. Yet, most participants had poor QOL. Nutritional status was related to quality of life score by WHQOL-BREF. However, this study was a single-centered study with a small size; so multicenter studies are recommended to corroborate the research findings.

Conflict of interest:

There is no conflict of interest.

References:

1. Liu H, Jiao J, Zhu C, Zhu M, Wen X, Jin J, et al. Associations Between Nutritional Status, Sociodemographic Characteristics, and Health-Related Variables and Health-Related Quality of Life Among Chinese Elderly Patients: A Multicenter Prospective Study. *Front Nutr.* 2020;7(10):1–11.
2. Tamang MK, Yadav UN, Hosseinzadeh H, Kafle B, Paudel G, Khatiwada S, et al. Nutritional assessment and factors associated with malnutrition among the elderly population of Nepal/ : a cross sectional study. *BMC Res Notes.* 2019;12(46):1–5.
3. Age in Asia. Ageing population in Bangladesh. 2020. Available at: <https://bit.ly/3zoJTD6>, (Last Accessed on 30, December 2022).
4. Khatami F, Shafiee G, Kamali K, Ebrahimi M, Sharifi F, Tanjani PT. Correlation between malnutrition and health-related quality of life (HRQOL) in elderly Iranian adults. *J Int Med Res.* 2019;48(1):1–12.
5. Kostka J, Borowiak E, Kostka T. Nutritional status and quality of life in different populations of older people in Poland. *Eur J Clin Nutr.* 2014;68(7):1210–5.
6. Palgi Y, Shrira A, Zaslavsky O. Quality of life attenuates age-related decline in functional status of older adults. *Qual Life Res.* 2015;24(8):1835–43.
7. Acar Tek N, Karaçil-Ermumcu M^a. Determinants of health related quality of life in home dwelling elderly population: appetite and nutritional status. *The journal of nutrition, health & aging.* 2018;22:996-1002.
8. Gezer C, Yurt M, Harmancio B, Elmas C. The relationship between malnutrition , diet quality and health-related quality of life among the elderly/ : A cross-sec- tional study. *Prog Nutr.* 2020;22(4):1–9.
9. Agarwal E, Miller M, Yaxley A, Isenring E. Malnutrition in the elderly: A narrative review. *Maturitas.* 2013;76(4):296–302.
10. Morley JE. Anorexia of ageing/ : a key component in the pathogenesis of both sarcopenia and cachexia. *J Cachexia Sarcopenia Muscle.* 2017;8(1):523–6.

11. Ahmed N. Nutritional Status and Morbidity Pattern of the Selected Geriatric Population in Dhaka City. *J Gerontol Geriatr Res.* 2020;6(2):599–602.
12. Rahman KM, Khalequzzaman M, Khan FA, Rayna SE, Samin S, Hasan M, et al. Factors associated with the nutritional status of the older population in a selected area of Dhaka, Bangladesh. *BMC Geriatr.* 2021;21(1):1–8.
13. Sarker AR. SSM - Mental Health Health-related quality of life among older citizens in Bangladesh. *SSM - Ment Heal.* 2021;1(0):1–9.
14. Péter S, Eggersdorfer M, Van Asselt D, Buskens E, Detzel P, Freijer K, et al. Selected nutrients and their implications for health and disease across the lifespan: A roadmap. *Nutrients.* 2014;6(12):6076–94.
15. Whoqol Group. Development of the World Health Organization WHOQOL-BREF quality of life assessment. *Psychol Med.* 1998;28(3):551–8. Available at: <https://bit.ly/3lWezJ6>, (Last Accessed on 30, December 2022).
16. Luger E, Haider S, Kapan A, Schindler K, Lackinger C, Dorner TE. Association Between Nutritional Status and Quality of Life in (Pre) Frail Community-Dwelling Older Persons. *J frailty aging.* 2016;5(3):141–8.
17. Mukundan M, Kashyap K, Dhar M, Muralidharan A, Agarwal D, Saxena Y. Nutritional and Functional Status as a Predictor of Short-Term Mortality in Hospitalized Elderly Patients in a Tertiary Care Hospital. *Cureus.* 2022;14(2):1–10.
18. Vidya PL, Usha G, Krishnaswamy B. Evaluation of Nutritional Status in Elderly Patients attending a Tertiary Care Hospital in South India. *Journal of the Indian Academy of Geriatrics.* 2018;14(1):9-16.
19. Sharma S, Yadav DK, Karmacharya I, Pandey R. Quality of Life and Nutritional Status of the Geriatric Population of the South-Central Part of Nepal. *J Nutr Metab.* 2021;2021:1–8.
20. El Osta N, El Arab H, Saad R, Rabbaa Khabbaz L, Fakhouri J, Papazian T, et al. Assessment of nutritional status of older patients attending a tertiary hospital in Middle Eastern country. *Clin Nutr ESPEN.* 2019;33:105–10.
21. Godbole VY, Shah MR, Mehta KG, Shah DN. Assessment of nutritional and functional status of patients attending the geriatric clinic of a tertiary care hospital in Gujarat, India. *Singapore Med J.* 2020;61(9):492–6.
22. AlAbedi G, Naji A. Quality of Life among Elderly at Primary Health Care Centers in Al-Amara City. *Kufa J Nurs Sci.* 2020;10(01):92–100.
23. Wong FY, Yang L, Yuen JW, Chang KK, Wong FK. Assessing quality of life using WHOQOL-BREF: A cross-sectional study on the association between quality of life and neighborhood environmental satisfaction, and the mediating effect of health-related behaviors. *BMC Public Health.* 2018;18(1):1–14.