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Malnutrition in Elderly Patients in Medical and Surgical Wards: Prevalence and Quality of Care Across Multiple Centers

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Abstract

Malnutrition among hospitalized elderly individuals is a significant concern globally, leading to increased morbidity, prolonged hospital stays, and higher healthcare costs.In Pakistan, particularly in Lahore, limited studies have assessed the prevalence of malnutrition and the quality of nutritional care in hospitals. This study aimed to determine the prevalence of malnutrition among hospitalized elderly patients, evaluate the quality of nutritional care provided, and assess patients' perceptions of food quality in hospitals in Lahore, Punjab, Pakistan. A cross-sectional study was conducted in January and February 2018 across multiple teaching hospitals in Lahore.A total of 145 inpatients aged 55 years and above were assessed using the full version of the Mini Nutritional Assessment (MNA) tool.Quality of nutritional care was evaluated through a 39-item questionnaire administered to head nurses, and patients' perceptions were gauged via semi-structured interviews.Anthropometric measurements, including mid-upper arm circumference (MUAC) and calf circumference, were also recorded. Among the 145 patients, 77 (53.1%) were malnourished, 54 (37.2%) were at risk of malnutrition, and 14 (9.7%) had normal nutritional status.Female patients exhibited significantly lower MNA scores, particularly those aged over 65, with more than three co-morbidities, and those unable to eat independently.Medical wards had a higher prevalence of malnutrition compared to surgical wards.Quality of nutritional care was suboptimal, with inadequate staff support during meal times and a lack of personalized nutritional assessments. The study highlights a high prevalence of malnutrition among hospitalized elderly patients in Lahore, underscoring the need for improved nutritional screening and individualized care.Enhancing staff training, increasing dietitian presence, and fostering a patient-centered approach to nutrition could significantly improve patient outcomes.

Introduction

Malnutrition is common in hospitalized patients, either they were malnourished before being admitted into the hospital or got malnourished during admitted period. Malnutrition poses elevated risk of immune system suppression, leading to a longer recovery period or further complication of the present disease, increasing morbidity, mortality, the length of hospital stays,

cost and the economic burden (Norman et al. 2008). Its plausible causes include altered intake, digestion, absorption, and metabolism of food. Although malnutrition has been subjected to discussion several times, but still it remains a significant and unresolved problem because of the unavailability of nutritional care in the hospitals (Vanderwee et al. 2011). Recently, the European Society of Parenteral and Enteral Nutrition (ESPEN) carried out a Consensus Conference to establish diagnostic criteria for malnutrition, based on body mass index (BMI) <18.5 kg/m2. The combination of weight loss and reduction in BMI or fat free mass (FFM) can be considered as alternative diagnostic criteria. The European Society of Parental and Enteral Nutrition chose three variables to accurately reflect malnutrition, weight loss, reduced BMI, and reduced FFMI. The experts at ESPEN distinguished between BMI reduction in pediatric and adult patients (<20 and <22 kg/m2, respectively) (Cederholm et al. 2015). PEM (protein energy malnutrition) is common in geriatric patients, either due to over consumption or under consumption, if prolonged leads to malnutrition (Agarwal et al. 2013; Allard et al. 2015). The most recent survey was conducted in general medical wards in 2009 and revealed a prevalence of malnutrition as high as 28.6% (Lucchin et al. 2009). More recently, a longitudinal study has been conducted on a sample of Italian older long-term patients, to investigate the relationship between nutritional and functional status (Cereda et al. 2013). According to a study conducted on geriatric patients, the malnourished patients took 3 days longer hospitalization as compared to non-malnourished patients, and the risk of death in malnourished patients during hospitalization was as high as 55%. The studies that have compared malnutrition prevalence between medical and surgical patients nationally are nonexistent, and only a few are available internationally (Allard et al. 2015; Laur and Keller 2015;Tangvik et al. 2015). There have been multiple studies published internationally, but little work was done to improve the problem. A systemic review and meta-analysis of malnutrition prevalence showed a 22% prevalence of malnutrition in the hospital settings using Mini Nutritional Assessment (MNA) (Cereda et al. 2016). Malnutrition and food intake factors are significantly associated with nutritional decline during hospitalization and influence the risk of readmission, length of hospital stay, in-hospital mortality, infections, pressure wounds and their impaired healing (Agarwal et al. 2013; Allard et al. 2015; Arvanitakis et al. 2008). This affects patients' health and leads to increased hospital costs (Lim et al. 2012). According to a study conducted in Belgium (Vanderwee et al. 2011), the nutritional care practices are suboptimal in hospital wards. The study showed a malnutrition prevalence of 31.9% and there isn't much improvement since the publication of report by the Council of Europe in 1999 (Beck et al. 2002). Similar results were deduced by another study (Fletcher and Carey 2011). Nutrition screening is the foremost and important step towards providing nutritional care and identifies those who are malnourished or at the risk of malnutrition, requiring subsequent nutritional support (Green and James 2013). However, this step is often skipped by the registered nurses in the hospitals (Adams et al. 2008; Bavelaar et al. 2008; Kondrup et al. 2002; Lazarus and Hamlyn 2005; Mowe et al. 2008; Persenius et al. 2008; Suominen et al. 2009). Since nurses provide a key role in identifying malnourished patients but they provide a neglected attitude towards nutritional care. Such an attitude of negligence by the healthcare professionals delays the timely identification of malnourished patients (Bachrach-Lindström et al. 2007; Bonetti et al. 2013b;Casanova et al. 2015). The MNA is considered a significant tool for the nutrition screening and malnutrition identification in the elderly (Bauer et al. 2008; Cereda et al. 2016; Guaitoli et al. 2014;Guigoz et al. 2006). The long form of MNA is better at predicting the functional decline and mortality as compared to the short form of MNA (Kiesswetter et al. 2014). There is a significant relationship between frailty and nutritional status in older people. The older people with increased frailty have lower MNA score (Bollwein et al. 2013). Other

factors such as individualized mealtime assistance, individualized nutritional treatment, monitoring meal consumption, quality of meals, patients' interaction during mealtimes are key elements in providing nutritional assistance (Feldblum et al. 2011; Paquet et al. 2008; Tassone et al. 2015; Vucea et al. 2014). According to the international literature, these aspects are underestimated and not applied in routine hospital care (Keller et al. 2015; Tappenden et al. 2013). This study is designed to determine the prevalence of malnutrition among elderly in medical and surgical wards of different hospitals, also assess the quality of nutritional care and patients' perception about the food quality provided by the hospitals.

Material and Methods

This cross-sectional study was conducted to determine prevalence of malnutrition among hospitalized elderly. All inpatients were evaluated with a full version of the MNA consisting of 39 questions, regardless of their length of stay. The quality of nutritional care was investigated through a questionnaire (Vanderwee et al. 2011) administered to all head nurses. The questionnaire was used to explore the current nutrition practices of each hospital, to investigate the frequency of nutritional assessment conduction and reports. To investigate patient's perceptions about food and quality of nutritional care a semi-structured interview was used. The study was conducted in different teaching hospitals in the city of Lahore, Punjab Pakistan. Data was collected from all medical and surgical units, except for emergency ward, pediatric ward, gynae, intensive care units and critical care units.

Sampling

The participants performed anthropometric measurements such as MUAC Mid upper arm circumference and calf circumference.The data was collected from inpatients, aged at least 55 Years or older; Inclusion criteria included the patients who were able to eat and even if they were fasting for medical examinations or surgical procedures. Patients receiving enteral or parenteral nutrition, who did not have a caregiver at the time of data collection were excluded.

Data collection

The wards covered in data collection were in particular, medicine, cardiology, rehabilitation and nephrology. To investigate the quality of nutritional care, the head nurses of the same wards were enrolled in the second part of the study. The aim of this study was to compare the quality of nutritional care and the prevalence of malnutrition among different medical and surgical units within the hospitals. During interviews and data collection, to determine prevalence of malnutrition a full version MNA was used. This tool is the reference standard for older people (Bauer et al. 2008; Cereda et al. 2016;Guigoz et al. 2006). The full version of MNA was preferred because it gives a detailed patient's nutritional situation, dietary habits, intake of proteins, fruit, vegetables and hydration status. Patients were declared malnourished if they had MNA below 17, at risk for malnutrition with an MNA ranging from 17.0–23.5 and healthy with a MNA of 24 or more. To determine quality of nutritional care the Italian version of the questionnaire by Vanderwee(Vanderwee et al. 2011) was used. It is a questionnaire composed of 39 items, which determines different aspects of the quality of nutritional care, for instance, the availability of standardized assessment tools, intake monitoring, nutritional teams, protocols for managing nutrition-related problems, number of both dedicated and non-dedicated registered nurses and nurses' aides during meals in the week and at weekends. Dieticians are requested as consultants so they were not involved in mealtimes. A semi-structured interview was conducted to investigate the perception of food quality by patients. One patient was interviewed at one time and all the patients assessed for malnutrition prevalence were included. Table 1 shows the

questions that were asked from the patients. Anthropometric measurements such as height and weight were taken directly from the patients and when this was not possible, as for bedridden patients, they were asked or alternative methods were used.

Table 1: Questions being asked from patients about quality of food and assistance during meal times.

Do you enjoy the food served in the hospital?
If not, what changes would you suggest to make it better?
Are there enough food options available for you here?
Is the food served at the correct temperature?
Did the hospital staff ask you about your food preferences?
If you don't like a particular dish, can you exchange it for something else?
Have you ever missed a meal? If yes, what was the reason? Did you receive your meal later? If not, why?
Have you ever needed help during mealtime, such as reaching the table, opening food containers, or cutting meat? If so, who assisted you?
What improvements would you suggest to enhance the help provided during meals?

The content of the interviews was then analyzed to identify recurring topics, using qualitative analysis.

Ethical considerations

Ethical letter has been taken from Research Ethical Committee of University of South Asia under the IRB. No. USA-RW/DR/2023/04/064

Data analyses

Descriptive statistics were used to analyze the data using SPSS Version 23. Continuous variables were compared by means of Student's t test, after normality verification by Kolmogorov–Smirnov test. Likert variables were compared through Wilcoxon–Mann–Whitney tests. Multivariate logistic regression was performed to assess risk of malnutrition related to gender, age, multiple comorbidities or therapies, autonomy during meals, medical or surgical condition and pressure ulcers. Hosmer– Lemeshow test was used to assess the goodness of fit of the model. A p-value <.05 was considered statistically significant. In accordance with (Vanderwee et al. 2010), we classified the patients into normally nourished, malnourished or at risk, to calculate odds ratios using logistic regression.

Results

Prevalence of malnutrition

A total of 145 patients were recruited into this study for assessment of the prevalence of malnutrition in hospitalized elderly. Each form was filled by trained personnel using interview method. Thus, without any exclusion, all 145 patients were evaluated and included for statistical analysis. The average age of the included patients came to be 64.38 ± 9.8 years. Out of the total 145 participating patients, 74 were male (51%) and 71 were female (49%). The median length of stay (LOS) in the hospital for both genders was 6 days, out of an inter-quartile range of [3; 8] days, where 74 patients were from medical units and 71 from surgical units of the 5 participating hospitals. The prevalence of CVD was highest in both groups irrespective of genders. The prevalence of diabetes mellitus and heart failure followed that of cardiovascular diseases with significant differences. There was a criterion of disease specified on the questionnaire based on 13 diseases while the rest were classified as "Others" A majority of patients, separately as well

as along with the co-morbidities, fell under the category of "Others" which was mainly related to gastric diseases. The demographic related data of the patients, as well as their nutritional disposition and co-morbidities (i.e. more than one diseases existing in a patient at one time), are shown in Table 2.

Table 2: Characteristics of the sample.

Characteristics	**All patients (n=145)**		**Medical patients (n=74)**		**Surgical patients (n=71)**		
	n		**n**		**n**		**P**
Age (Mean ± SD)	64.38 ± 9.8		66.08 ± 10.25		62.61 ± 9.04		0.033
Gender (n=145)							0.025
Male	74	51	31	41.9	43	60.6	
Female	71	49	43	58.1	28	39.4	
BMI	24.03 [21.1; 26.15]		23.31 [20.74; 25.3]		24.78 [21.47; 26.6]		0.042
LOS Median [Q1; Q3]	6 [3; 8]		5 [3; 7]		7 [3; 10]		NS
Comorbidities							
<3	82	56.6	38	51.4	44	62.0	
≥3	63	43.4	36	48.6	27	38.0	
Age <60 years	38	26.2	17	23.0	21	29.6	
Age ≥60 years	107	73.8	57	77.0	50	70.4	
MNA Median [Q1; Q3]	16 [14.5; 21]		15.5 [14; 18.62]		17.5 [15.5; 22]		NS
MNA							
Malnourished	77	53.1	45	60.8	32	45.1	
At risk	54	37.2	24	32.4	30	42.3	
Normal	14	9.7	5	6.8	9	12.7	
Diagnosis Category							
CVD	34	23.4	17	23.0	17	23.9	
COPD	1	0.7	1	1.4	0	0.0	
Heart failure	5	3.4	3	4.1	2	2.8	
Diabetes	20	13.8	9	12.2	11	15.5	
Trauma	1	0.7	0	0.0	1	1.4	
Oncology	1	0.7	0	0.0	1	1.4	
Dementia	4	2.8	2	2.7	2	2.8	
Depression	0	0.0	0	0.0	0	0.0	
Musculoskeletal	6	4.1	5	6.8	1	1.4	
Pneumonia	3	2.1	1	1.4	2	2.8	
Urinary tract infection	0	0.0	0	0.0	0	0.0	
Autoimmune	1	0.7	1	1.4	0	0.0	
Major abdominal surgery	7	4.8	4	5.4	3	4.2	
Others	62	42.8	31	41.9	31	43.7	

MNA scores calculation for malnutrition assessment in hospitalized patients belonging to both medical and surgical wards showed that out of 145 patients participating in the study, 77 were malnourished (53.1%), 54 were at risk of malnutrition (37.2%), whereas only 14 patients met the criteria of owning a normal nutrition status. MNA scores were significantly low in medical patients when both groups were compared. Overall, female patients showed a statistically significant association of lower MNA scores with the increase in age, presence of more than 3 co-morbidities, inability to eat and taking more than one medicines at one time as shown in Table 3.

TABLE 3 Comparison of MNA scoring between medical and surgical patients, considering all confounding variables

Variable	All patients (n=145)			Medical patients (n=74)			Surgical patients (n=71)		
	n	**MNA median [Q1; Q3]**	**p**	**n**	**MNA median [Q1; Q3]**	**p**	**n**	**MNA median [Q1; Q3]**	**p**
Gender			0.001			0.003			0.049
Male	74	18.5 [15.5;21.5]		31	18 [15.5; 21]		43	18.5 [15.5; 21.5]	
Female	71	15.5 [14; 19]		43	15.5 [12; 16]		28	16.5 [15.1; 22.4]	
Age			0.000			0.004			0.010
<60 years	38	18.5 [15.5;21.4]		17	16 [15.5; 21.5]		21	18.5 [16; 21.7]	
≥60 years	107	15.5 [13; 21]		57	15.5 [12; 18]		50	16.7 [15; 22]	
Comorbidities			0.001			0.005			0.016
≥3	82	17.7 [15.5;21.5]		36	15.5 [12; 18.1]		27	15.5 [12.5; 21.5]	
<3	63	15.5 [12.5; 20]		38	16 [14.4; 19.9]		44	18.5 [15.5; 22.75]	
Polytherapy			0.000			0.000			0.014
≥3 drugs per day	114	15.5 [14; 19]		52	15.5 [12.5; 17.9]		62	16.7 [15; 21.5]	
<3 drugs per day	31	20 [15.5; 23]		22	20 [15.2; 22.5]		9	22.5 [17.2; 23.5]	
Ability to eat			0.000			0.001			0.001
Yes	107	18.5 [15.5; 22]		55	16 [15.5; 20]		52	20 [16; 22.5]	
No	38	13.25 [11; 15.5]		19	12 [11; 15.5]		19	15 [12.5; 15.5]	
Pressure ulcers			0.019			0.011			0.169
Yes	22	18 [15.5; 21]		12	17 [15.5; 20.6]		10	18.5 [16.1; 21.1]	
No	123	15.5 [14; 21.5]		62	15.5 [12.4; 18.5]		61	17 [15.5; 22.5]	
Patient Category			0.004						
Medical patients	74	15.5 [14; 18.6]							
Surgical Patients	71	17.5 [15.5; 22]							

Considering, there are a small number of studies comparing medical and surgical units in hospitals in Pakistan, no helpful literature could be found on tabulation of the results. Therefore, we chose to tabulate the results for the patients of both wards separately. Gender slightly influences the incidence of malnutrition when all patients were considered including both medical and surgical units. Women were more malnourished than men as a whole in both wards. As observed in Table 4, medical patients were not significantly more at risk of being malnourished than surgical patients (OR= .499, [95% CI: .159 –1.57]).

Table 4 Univariate analysis of factors associated with malnutrition

Variable	N	All patients (n=145)				Medical patients (n= 74)				Surgical patients (n=71)			
		OR	95% CI		p	OR	95% CI		p	OR	95% CI		p
Female gender vs male	145	.253	.067	.948	.041	.161	.017	1.51	.110	.396	.076	2.06	.271
Age <60	145	1.14	.336	3.87	.832	.828	.086	7.94	.870	1.22	.275	5.42	.792
3 or more comorbidities	145	.323	.086	1.21	.094	.243	.026	2.28	.216	.423	.081	2.20	.307
Less than three medications	145	.586	.124	2.76	.500	.571	.060	5.42	.626	.844	.093	7.67	.880
Inability to eat in autonomy	145	.195	.025	1.54	.122	.000	.000	.	.998	.306	.036	2.62	.280
Pressure ulcers	145	.000	.000	.	.998	.000	.000	.	.999	.000	.000	.	.999
Medical vs surgical patients	145	.499	.159	1.57	.235								

The logistic model had a satisfactory goodness of fit (Hosmer–Lemeshow test: p =.818). The presence of three or more co-morbidities and impaired autonomy had no significant effect on malnutrition in surgical and medical patient wards separately. The odd ratios of these variables can be seen in Table 5. A total of 30 nurses and head nurses were interviewed from 5 hospitals through a questionnaire (Vanderwee et al. 2011). Out of 24 units, 17 were medical (70.8%) and 7 were surgical (29.2). Weight measurement was seen in 13 units (54.2%) with the medical unit having a higher value of 61.5% out of 54.2%. The decision of taking patient's weight at admission and during stay depended solely on doctor's request. B.M.I. was assessed in none of the wards as well as no nutritional protocol was present for nurses to follow in all 24 units. No malnutrition screening tools were being used in all hospitals included in the study.

Table 5 Results of multivariate logistic regression

Variable	Whole sample: OR (95% CI), p	Medical patients, p	Surgical patients, p
Age <60	.860 (.235;3.15), .820	.694 (.057;8.52), .776	.755 (.140;4.06), .743
Inability to eat in autonomy	.173 (.021;1.40), .100	.000 (.000;.), .998	.237 (.026;2.17), .203
Less than three medications	.535 (.000;.), .449	1.35 (.106;17.37), .816	.365 (.036;3.751), .397
Pressure ulcers	.000 (.000; .), .998	.000 (.000; .), .999	.000 (.000; .), .999
Three or more comorbidities	.221 (.056; .863), .030	.172 (.017; 1.77), .139	.237 (.038; 1.49), .126

Similarly, nutrition anamnesis was observed in none of the 24 units while nurses mainly used a generalized rotation based menu for all patients, if not specified by the medical team. Only texture modification was done for patients in few units. Dining rooms were absent in 23 units and only 1 surgical unit had a dining room which was being used by the patient's family and/or caregiver. In all 24 units, no head nurses and medical aides or health workers helped patients during mealtimes and all of them were positive about patient's own caregivers to help with patient's meals. The median number of nurses and medical aides or health workers etc. during mealtimes were 2 (out of an inter-quartile range of [2, 3]), both on weekdays and weekends, with

a constant p-value of 0.03 between the medical and surgical units. It was observed that surgical units had more nurses and aides or health workers appointed during mealtimes.

Table 6 Results of the Vanderwee questionnaire administered to head nurses in medical and surgical wards

Variable	**Whole units (24) N (%)**	**Medical units (74) N %**	**Surgical units (71) N %**	**p-value**
Malnutrition Screening Tools				
None	24 (100)	17 (70.8)	7 (29.2)	.
MNA	0 (0)	0 (0)	0 (0)	
MNA SF	0 (0)	0 (0)	0 (0)	
MUST	0 (0)	0 (0)	0 (0)	
Unspecified tool	0 (0)	0 (0)	0 (0)	
Home-made tool	0 (0)	0 (0)	0 (0)	
Patient's weight measure				
Yes	13 (54.2)	8 (61.5)	5 (38.5)	0.276
No	11 (45.8)	9 (81.8)	2 (18.2)	
Nutritional anamnesis				
Yes	0 (0)	0 (0)	0 (0)	.
No	24 (100)	17 (70.8)	7 (29.2)	
Presence of nutritional protocol				
Yes	0 (0)	0 (0)	0 (0)	.
No	24 (100)	17 (70.8)	7 (29.2)	
Health workers during mealtime from Monday to Friday (median [Q1; Q3])	2 [2, 3]	2 [2, 2.5]	3 [2, 4]	0.030
Health workers during mealtime during weekend (median [Q1; Q3])	2 [2, 3]	2 [2, 2.5]	3 [2, 4]	0.030
Health workers actually dedicated to mealtime from Monday to Friday (median [Q1; Q3])	2 [2, 3]	2 [2, 2.5]	3 [2, 4]	0.030
Health workers actually dedicated to mealtime during weekend (median [Q1; Q3])	2 [2, 3]	2 [2, 2.5]	3 [2, 4]	0.030

Each participating patient was interviewed to check the perception regarding quality of food. 33.1 % gave no response, 21.4 % thought the food was good, 31% found it acceptable whereas 14.5 % said that the food was inadequate. Most patients were satisfied with the appearance of food in all five hospitals. While, some patients complained about the taste of food to be generally bland. In their views, the bland food was being given to all patients irrespective of their medical and nutritional needs which made it less acceptable for them. Patients were all satisfied with the frequency, delivery temperature and delivery time of meals. Many found the portion of food to be adequate. Both patients and their care-givers, did not notice any shortage of staff during mealtime services. They found the meal service and staff very vigilant and supportive at all times

of the day. Most patients reported that they never missed their meals and if they did, they received it later on.

Discussion

This study was designed to determine the prevalence of malnutrition among elderly in medical and surgical wards of different hospitals, also assess the quality of nutritional care and patients' perception about the food quality provided by the hospitals. To our knowledge, this is the first study to be conducted in both medical and surgical wards and one of the very few studies available in the international literature. Our results cover three different aspects; prevalence of malnutrition, quality of nutritional care, and patients' perception about the quality of nutritional care. The prevalence of malnutrition is very high according to a research (Lucchin et al. 2009), but in our study it is remarkably high. The ratio of malnourished patients is 1:2 in our study. The high risk (53.1%) of malnutrition is the main concern to deal with as patients can be malnourished during their stay in hospital (Edwards et al. 2017). Median length of stay in our study is 6 days and it is not enough for a healthy person to be malnourished. This shows that the patients were already malnourished or at a risk of it. As we do not have any data to explain the nutritional status of patients at the time of admission, so we are unable to say that malnutrition is hospital acquired or patients were already malnourished. Whatever the reason of this malnutrition is, it is a great percentage and an alarming situation. It is suggested that special screening should be done before admitting the patients to the hospital and those patients who have under estimated their nutritional status should be reported to the health care staff, so that compensatory measures can be applied to meet the nutritional needs (Giovannelli et al. 2015). Other studies say that the prevalence of malnutrition in females is greater than males. As those who have more than 3 diseases, older than 65 ages, having pressure ulcer or taking more than 3 prescribed drugs are included in this category (Agarwal et al. 2013; Allard et al. 2015; Rentero et al. 2015; Tangvik et al. 2015). Our results are consistent with these studies and ratio of female malnourished patients is high than male. It is also revealed that patients admitted to the medical ward are more malnourished and their health condition is more critical than those admitted in the surgical ward but risk of being malnourished is high in both wards. This cross-sectional study reveals the importance of nutritional care in Pakistan, which is not up to the mark. If we consider the ward environment, no health care professional is ready to provide assistance to the patient. Even only few doctors (an average of 2 in a ward) ask about the food that the patients are eating. There is average of 25 patients in a ward, so this number is not sufficient to provide good support. This condition can intensify the malnutrition status of the patients. Many studies support the concept of individual assistance to decrease malnutrition during the meal time (Feldblum et al. 2011; Simmons et al. 2008;Simmons and Schnelle 2004). Recently a study conducted in Europe showed that the educational level of health care provider is directly proportional to patient's health (Aiken et al. 2014). "Higher the education level, greater will be the positive outcomes". In a study, (Vucea et al. 2014) has shown the connection between meal timings, choices of food and patient's health. The systemic review was also able to identify the patients who need assistance during meal timings There were no specific screening tools for the assessment of nutritional status; however, it should be the first thing to use for the admission of the patients (Green and James 2013). Only few hospitals do the screening but there is no proper monitoring of it. Green and James review said this is due to inadequate knowledge and negative concerns about the nutritional health of the patients. It would be better to adopt a regular nutritional screening procedure in hospitals along with other parameters at the time of admission. This will help in achieving the better nutritional status. Several studies (Bonetti et al. 2013a;

Christensson and Bachrach-Lindström 2009;Keller et al. 2015) also reveal that hospital administration should also record the dietary habits of the patients. Our analysis shows it is possible to monitor the intake of the patients but for that purpose nurses should be appointed and strictly ordered to take the dietary recall of patients into an account. This would be a positive step in providing individual assistance planned to increase the meal consumption with results of better quality life to patients. There is also a lack of monitoring to check either patient is properly eating meals or not. Prolonged reduction or skipping of meal results in malnutrition (Thibault et al. 2011). Nurses along with dieticians should be appointed on this. The number of dieticians on an average is 2 per hospital which is not sufficient to meet the demand. Moreover, dieticians are only called in case of severe complications or for critical patients. Literature says if family like eating pattern is developed in patients, there will be an increase in meal consumption. The reason is, patients will be more comfortable and happy; a strong relation will develop among them (Edwards et al. 2017). The real application of this theory is not possible in hospitals due to some reasons. First there are no dining rooms for the patients and if present patients do not have permission to use it. Second the environment there is not supporting and encouraging for the patients to leave their bed and go to dining rooms for meal. Overall patients were gratified with the quality of food. There was a general negativity in their view regarding the taste of the food. Patients said that the food they were provided with was bland and has no taste. Although they were also agreed that this type of food is good for patients, but still they want to have some spices in the meal. All hospitals do not provide readymade tray of food to patients. Some use trolleys to deliver the food and call patients to receive the food outside the wards, other have different catering services. Every hospital has internal kitchen but only few allow the patient to use it. Usually patients do not even know where the kitchen. Cleanliness level and facilities present there are also not satisfied. There are general meal plans for all types of patients, no patient receives special meal. Dialysis patients are on restricted diet due to dialysis and they should not be given the usual meals but every hospital except of few is providing them the same meal cooked for other patients. Patients did not complain about the shortage of staff during the meal time as it was clear from the survey of head nurses, but nurses are not there to help the patients with the food. Several studies focus on personalized assistance during the meal time (Bonetti et al. 2013a; Christensson and Bachrach-Lindström 2009; Feldblum et al. 2011; Tassone et al. 2015; Vucea et al. 2014). Volunteers can be engaged to help the patients at the time of meal (Edwards et al. 2017; Hickson et al. 2011;Tassone et al. 2015). Majority of the patients said they don't need any type of assistance (as they have their personal attendant). Food is always on time whether the patient is on his bed or has gone for diagnosis. There should be a proper nutrition culture (Tappenden et al. 2013) that would help in reducing the malnourishment. Health care professionals especially nurses play important role in this. Their role should be re-evaluated, and duties should be re designed. Nutrition screening as well as monitoring should be of utmost important.

Limitations

The study's cross-sectional design limits establishing causality between malnutrition and its determinants.Conducted in a few hospitals in Lahore, the findings may not be generalizable to other regions.Standardized meals provided to all patients, irrespective of their health conditions, could have contributed to malnutrition.Additionally, the actual food intake of patients was not monitored, preventing a direct link between caregiver assistance during meals and nutritional status.

Recommendations for Practice

To address the high prevalence of malnutrition among hospitalized patients in Pakistan, it's essential to implement routine nutritional screening upon admission using tools like the MNA or SGA.Healthcare professionals, particularly nurses, should receive training on nutritional protocols to enhance patient care.Monitoring dietary intake is crucial; however, many hospitals lack the necessary staff and systems to track this effectively.Hospital food often neglects patients' nutritional needs, sometimes relying on external catering that prioritizes taste over health.Developing comprehensive, patient-specific meal plans in collaboration with dietitians, and allowing patients and attendants access to kitchen facilities, can improve nutritional outcomes.Additionally, increasing kitchen staff and involving volunteers during meal times can ensure timely and appropriate assistance for patients.

Conclusion

There is a need to set up validated and verified nutritional assessment tools, paying importance to the nutrition in both medical and surgical wards. Overall the BMI of patients was within normal range (), more than fifty percent patients were malnourished, more were in medical wards than in surgical wards, but both wards should pay attention to the nutrition. Thus, there is a need to improve nutrition care process with special regards to assessment and diagnosis of malnutrition. There is also a need to improve the quality and type of food delivered to the patients. There was contradiction among patient’s comments about the health care services. Finally, to improve the quality of care provided to the patients and to reduce disease burden upon the country it is time to address hospital malnutrition at all levels.

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