

## Evaluation of Nutritional Assessment Quality and Rate of Referral to a Dietitian in Shariati Hospital, Tehran, Iran: A Clinical Audit

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### ABSTRACT

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**Background:** Malnutrition is an acute or a chronic condition resulting from an imbalance in the intake, both in the form of undernutrition and over nutrition, leading to changes in the composition or reduced function of the body. Bio-social conditions and acute or chronic diseases are the most important factors affecting nutrition. It has been suggested that awareness of the prevalence and severity of malnutrition in hospitalized patients can be used by managers to understand the causes, health care system requirements, and health plans.

**Methods:** Medical records of 483 patients from 11 different wards of Shariati general hospital were assessed to evaluate the quality of nutritional assessment and the rate of referral to nutrition experts by physicians. This study consisted of two phases: evaluation of initial nutritional assessment and assessing the accuracy of malnutrition screening forms completion.

**Results:** Our study showed no initial nutritional assessment for 34% of the patients. Assessment of the accuracy of malnutrition screening showed that there was a considerable error in the reporting of BMI (66%), weight loss (51%), appetite loss (50%), and severity of the patient's situation (39%). Also, the rate of referral to a nutritionist was 0% and 1% in the first and second phases of the study, respectively.

**Conclusion:** The present study showed that the quality of nutritional screening and subsequent referral to nutrition experts for professional nutritional assessment is negligible in Shariati hospital, Tehran, Iran.

### Introduction

Malnutrition is a broad term that refers to any imbalance in nutrition, from overnutrition often seen in the developed countries to undernutrition seen in most developing countries. It also can be seen in hospitals and residential care facilities in developed nations. Malnutrition can develop because of deficiency in dietary intake, increased requirements associated with a disease state, an underlying illness such as poor absorption and excessive nutrient losses, or a combination of these aforementioned factors [1].

The European Society of Parenteral and Enteral Nutrition (ESPEN) defines malnutrition as a disease-related weight loss, a protein deficiency, or a deficit in specific nutrients [2]. Therefore, malnutrition seen in hospitalized patients is often a combination of cachexia (disease-related) and malnutrition (inadequate consumption of nutrients) as opposed to malnutrition alone. Major risk factors responsible for the development of malnutrition in ambulatory and hospitalized patients include old age and malignant and chronic

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diseases, all of which can lead to inadequate intake of food [3-4].

Malnutrition has been referred to as the skeleton in the hospital closet, as it is often overlooked, undiagnosed, and untreated [5-6]. Malnutrition prevalence in the hospital (acute) setting has been widely documented in the literature, with an extensive range between 20% and 50%, depending on the patient population and the description and criteria used for diagnosis [7-8]. A large portion of these patients are malnourished at the time of admission, and in most cases, the situation will get worse during hospitalization [9]. It has been reported that at least one-third of patients exhibit some degrees of malnutrition upon admission to the hospital in developed countries [10-12]. If the status of these patients is neglected, approximately two-thirds of patients will experience a worsening of nutritional status during the inpatient stay. In addition, in the case of patients who are well nourished upon admission, nearly one-third of them become malnourished during hospitalization [12]. Previous research has shown a high prevalence of hospital malnutrition in Iran [13-15]. Moreover, studies pointed to the fact that the situation of patients with malnutrition exacerbate after discharge [14].

Patients are typically referred to the nutritionist by the medical and nursing staff; however, lack of time for performing additional screening of these patients is the main problem [16]. In Iran, nutrition consultation is offered by physicians. Therefore, the main concern is the inability to identify malnourished patients in acute conditions. In some countries, such as the United

Kingdom, the United States, the Netherlands, and some areas of Denmark, nutritional screening of patients is mandatory upon admission. Moreover, accreditation of a hospital is dependent on the fulfillment of this procedure [17]. While nutritional screening is not mandatory in Australia, for example, in 2007, the Subjective Global Assessment (SGA) was used for the evaluation of the nutritional assessment of patients in private hospitals, which reported a rate of 42% malnutrition and only 15% of these patients referred to a dietitian [18-19]. Unfortunately, in spite of the availability of valid screening tools, malnutrition is underestimated in most hospitals [20-21].

The present study aimed to assess the quality of the initial nutritional assessment of patients in Iran's hospitals.

### Methods

This cross-sectional study was carried out at Shariati general hospital in Tehran, a 400-bed hospital with specialties of cancer, gastroenterology, gynecology, cardiology and cardiac surgery, endocrinology, nephrology, urology, neurology and neurosurgery, orthopedics, pulmonology, rheumatology, general surgery, and maxillofacial surgery. A nutritionist was instructed to gather data from the medical records of patients. In the first phase of the study (3 working days), the patients' initial nutritional assessment was evaluated. The initial nutritional assessment forms, which were completed by nurses, included questions about height, weight, BMI, and nutritional status, and referral for intensive nutritional care (Box 1).

	Yes	No
1. Is the BMI <20?		
2. Has the patient lost weight within the last 3 months?		
3. Has the patient had a reduced dietary intake in the last week?		
4. Is the patient severely ill? (e.g., in intensive therapy)		
If the answer to any question is <i>Yes</i> , the screening in Table 2 is performed.		
If the answer to all questions is <i>No</i> , the patient is re-screened at weekly intervals. If the patient is scheduled for a major operation, a preventive nutritional care plan is considered to avoid the associated risk status.		

**Box 1.** Items in the initial screening form

In the second phase (3 working days), the accuracy of malnutrition screening was examined. The distribution of study subjects by the type of service received is shown in Table 1. In order to verify the accuracy of assessments, additional questions were asked (Box 2). Also,

the quality of referral to a nutritionist was assessed based on the results of initial nutritional screening and the professional nutritional assessment conducted by the nutritionist.

		Verification measures	
		Yes	No
1	Is the BMI <20?	The BMI was recalculated using the height and weight measured by nurses for the second item (Has the patient lost weight within the last 3 months?)	
2	Has the patient lost weight within the last 3 months?	self-reported weight loss (if reliable and realistic) Comparing the patient's usual weight with the weight measured at the hospital. Asking from patients or their companions whether clothes or accessories had become loose (weight loss).	
3	Has the patient had a reduced dietary intake in the last week?	Use self-reported weight loss (if reliable and realistic.)	
4	Is the patient severely ill? (e.g., in intensive therapy)	With matching disease in hospitalized patient with protocols.	

**Box 2.** Verifying data accuracy for initial screening items

**Table 1. Classification of patients in Shariati general hospital by medical services received**

Medical condition	Number	%
Gynecology	22	9.5
General surgery	34	14.5
Neurosurgery	24	10
Nephrology & urology	30	12.5
Neurology	16	7
Gastroenterology	18	7.5
Rheumatology	9	4
Orthopedics	22	9
Cardiology and cardiac surgery	20	8.5
Pulmonology & Thoracic surgery	26	11
Internal	15	6.5
Total	236	100

**Results**

In the first phase of this study, overall medical records of 226 patients from 247 overall beds

were examined. The results showed that regardless of empty beds, there was no initial nutritional assessment on 34% of the patients. For the remaining 66%, the initial nutritional assessment form was filled out inaccurately. None of the patients had been referred to the nutritionist, and none of the medical records included a professional nutritional assessment (Table 2). In the second phase of the study, a total of 191 patients from 236 overall beds were examined. The results have been shown in Tables 3 and 4 by the hospitalization ward. Evaluation of the accuracy of malnutrition screening showed substantial errors in reports of BMI, weight loss, appetite loss, and illness severity by 66%, 51%, 50%, and 39%, respectively. The results revealed that only 1% of the patients had been referred to the nutritionist.

**Table 2. Rate of completion of initial nutritional assessment forms in Shariati general hospital, Tehran, Iran**

Item	Number of Beds	%
Lacking initial nutritional assessment	77	34
Incomplete initial nutritional assessment	149	66
Number of referrals to dietitian	0	0
Professional nutritional assessment in medical records	0	0
Total	226	100

**Table 3. Accuracy of initial nutritional assessment of patients admitted to different wards in Shariati general hospital**

Data reported	Int	Card	Gen	Pul	Neph	Neu	Orth	Gast	Gyn	Rhe	Neuros
Total beds (n)	16	22	39	29	31	17	35	18	38	12	24
Empty beds (n)	1	2	5	3	1	1	13	0	16	3	0
Weight reported (n)	7	7	12	8	27	13	14	5	19	8	10
Height reported (n)	7	7	12	8	27	13	14	5	19	8	10
Malnutrition screening completion	15	11	12	20	23	13	17	11	19	8	5
Accurate assessment of BMI <sup>a</sup> (n)	1	4	1	3	9	10	10	4	11	8	4
Accurate assessment of weight reduction <sup>b</sup> (n)	8	5	5	7	14	6	11	8	19	7	4
Accurate assessment of appetite reduction <sup>c</sup> (n)	6	6	10	6	11	10	9	8	19	6	5
Accurate assessment of illness severity <sup>d</sup> (n)	12	7	7	14	12	12	15	9	16	8	5
Number of patients referred to nutritionist (n)	0	0	1	0	2	0	0	0	0	0	0
Evaluation forms filled by nutritionist (n)	0	0	0	0	0	0	0	0	0	0	0
Evaluation of malnutrition screening	0	0	0	0	0	0	0	0	0	0	0

outcome (n)

Int: Internal; Card: Cardiology and cardiac surgery; Gen: General surgery; Pul: Pulmonology & Thoracic surgery; Neph: Nephrology & urology; Neu: Neurology; Orth: Orthopedics; Gast: Gastroenterology; Gyn: Gynecology; Rhe: Rheumatology; Neuros: Neurosurgery.

<sup>a</sup>Is BMI <20?

<sup>b</sup>Has the patient lost weight within the last 3 months?

<sup>c</sup>Has the patient had a reduced dietary intake in the last week?

<sup>d</sup>Is the patient severally ill?

**Table 4. Accuracy of initial nutritional assessment for patients in Shariati general hospital (n = 191)**

Items	Number	%
Accurate completion of BMI items	65	34
Accurate completion of weight reduction items	94	49
Accurate completion of appetite reduction items	96	50
Accurate completion of illness severity	117	61
Referral to nutritionist	2	1

**Discussion**

The inability to diagnose and treat malnourished patients is a major concern in clinical practice worldwide [22]. Failure to diagnose patients with malnutrition or refer them to professional assessment and treatment has been reported in 60%-85% of patients in UK hospitals [23-25], whereas 64% malnutrition has been reported in a Norwegian hospital [26] and 73% in a Singaporean hospital [27].

The results of the first phase of this study revealed that no initial nutritional assessment was done on a considerable part of patients on admission. Also, the rate of referral to a nutritionist by nurses or medical staff was negligible. Except for a study conducted to evaluate rates of referral to a nutritionist by health professionals [14], to our knowledge there is no similar study in Iran until now. The study by Lazarus and Hamlyn [18], evaluating malnutrition risk in an Australian hospital, showed that only one of 137 malnourished patients was registered as malnourished in the medical records and that only 21 patients (15.3%) were referred for nutritional intervention. In the study by Adams et al. [19], health professionals had a poor performance in recognizing malnutrition risk factors in patients. They had identified only 19% of patients with actual weight loss (7% were referred for dietetic assessment) and 53% of patients with actual appetite loss (9% were referred for dietetic assessment) [19].

Hosseini et al., exploring the nutritional status of patients during hospitalization, showed that only 3 (1.9%) of 156 patients had received a nutritional consultation, and only 2 (1.3%) had

received nutritional support [14]. Studies conducted in other countries also indicated poor documentation of nutritional risks by health professionals [23, 28-29].

Some limitations of the present study include the following: First, this study was conducted in a single general hospital. Conducting these studies simultaneously in several general hospitals or private hospitals could have greater generalizability and provide a more accurate estimate of the quality of screening and nutritional assessments or referral to nutritionists. Second, the hospital was not equipped with advanced equipment such as beds capable of measuring the weight and height of hospitalized patients, which could eliminate the bias due to asking the patients or their companions about these measures.

Existing barriers to dietetic referral could have been originated from items such as time- and work-related pressures, inadequate skills or training, or a perceived lack of resources. In addition, they may presume that nutritional screening is not a part of their job. However, results from the questionnaires showed that all nursing staff and 95% of the medical staff would refer to a dietitian if they inferred malnutrition existence. This demonstrates a discrepancy between health professionals' knowledge and what occurs in practice [19].

Studies suggest that iatrogenic malnutrition could be attributed to the lack of managerial instructions to deal with the problems, the lack of basic knowledge of dietary requirements, or inattention to the practical aspects of the hospital's food service. According to Gallagher-Allred et al., a lack of attention to medical nutrition therapy might incur huge costs [30].

**Conclusion**

The present study illustrates that malnutrition remains a major problem in hospitalized patients and is poorly recognized and documented by health professionals. There is a gap in developing appropriate education and training materials to enhance knowledge of health professionals in the context of nutritional risk factors for malnutrition.

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**Conflict of interest**

None declared.

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None.

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