Are Nutritional Care Adequate for Elderly Hospitalized Patients? A Cross-Sectional Study

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Abstract
This article assesses nutritional care in identifying and treating nutritional risk in elderly hospitalized patients. A cross-sectional study was conducted at a large Norwegian University hospital in the period 2011 to 2013. Data on nutritional risk and care for elderly patients (≥70 years) without dementia were collected at 20 wards by 173 second-year nursing students in acute-care clinical studies. A stratified sampling technique was utilized to improve the representativeness of the sample. In total, 508 patients (48.8% women) with a mean age of 79.6 years participated. The internationally and nationally recommended nutritional care was not implemented at the hospital, suggesting that nutritional care for elderly hospitalized patients was not adequate. This implies that the majority of the elderly patients nutritionally at risk are neither identified nor treated according to their needs. The article highlights the importance of having systematic nutritional care practices to make it possible for the hospital ward staff to routinely identify nutritional risk and initiate appropriate nutritional treatment measures.

Keywords
nutritional care, nutritional risk, elderly patients, hospital care, cross-sectional study

Introduction
According to the Norwegian Patients’ Rights Act (1999), all patients have a basic human right to receive treatment and care according to their needs. Elderly patients thus have a right to expect their nutritional needs to be fulfilled during hospitalization. Several studies have shown that a large proportion of elderly patients are already undernourished, or at risk of becoming so, on hospital admission (Imoberdorf et al., 2010; Lucchin et al., 2009). For the majority, nutritional status often deteriorates during their hospital stay (Rasmussen, Holst, & Kondrup, 2010). Considering the increase in the aging population in Norway, as in the rest of Europe, it may not be unreasonable to assume that the proportion of undernourished elderly patients will rise. It is therefore vital that hospitals have a nutritional care policy ensuring proper identification and treatment of patients suffering from undernutrition and the risk of undernutrition. In recent decades, there has been a growing awareness of undernourishment in the health care sector in Europe (Council of Europe, 2003; Ljungqvist, van Gossum, Sanz, & de Man, 2010). In line with European guidelines (Howard et al., 2006; Kondrup, Allison, Elia, Vellas, & Plauth, 2003; National Collaborating Centre for Acute Care, 2006), national professional guidelines on prevention and treatment of undernutrition were published for the first time in Norway in 2009 (The Norwegian Directorate of Health, 2009). Nevertheless, there is a limited body of research available today exploring how undernourishment is addressed for elderly patients in the hospital setting in Norway. A cross-sectional study designed to estimate the prevalence of nutritional risk among elderly patients was conducted at a large university hospital in the period 2011 to 2013 (H. K. Eide, Šaltytė Benth, Sortland, Halvorsen, & Almendingen, 2015). To assess nutritional care, data on identifying and treating nutritional risk were also recorded, which was the aim of the present article.

Background
At present, there is no clear consensus on a method for identifying undernutrition (Cederholm et al., 2015; Rasmussen et al., 2010). Moreover, the terms “undernutrition” and “malnutrition” are often used interchangeably (Cederholm et al., 2015). Nevertheless, there is a limited body of research available today exploring how undernourishment is addressed for elderly patients in the hospital setting in Norway. A cross-sectional study designed to estimate the prevalence of nutritional risk among elderly patients was conducted at a large university hospital in the period 2011 to 2013 (H. K. Eide, Šaltytė Benth, Sortland, Halvorsen, & Almendingen, 2015). To assess nutritional care, data on identifying and treating nutritional risk were also recorded, which was the aim of the present article.

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The following definition of malnutrition is, however, widely used (Stratton, Green, & Elia, 2003): “A state of nutrition in which a deficiency, excess or imbalance of energy, protein, and other nutrients causes measurable adverse effects on tissue/body form (body shape, size and composition), function, and clinical outcome,” whereby undernutrition constitutes part of the deficiency. For elderly in the hospital setting, a variety of physiological, psychological, and social changes associated with the process of ageing interact with disease processes, making this group of patients particularly vulnerable to developing undernutrition (Morley, 1997; Norman, Pichard, Lochs, & Pirlich, 2008; Stratton et al., 2003). Focus on optimal care for prevention and treatment of undernutrition is therefore important for elderly hospitalized patients.

Traditionally, nurses have been responsible for patients’ nutrition as part of caring for the patients’ basic needs (Henderson, 1997). Now, however, nutrition is generally seen as an interdisciplinary field in which several hospital professions (Jefferies, Johnson, & Ravens, 2011), including physicians, nurses, clinical dietitians, and food service staff, partake. Nevertheless, by being with the patients in a 24/7 context, the importance of nurses in identifying the need for nutritional treatment and implementing appropriate nutritional treatment measures should be underscored (Bonetti, Bagnasco, Aleo, & Sasso, 2013; Jefferies et al., 2011). Nurses represent the largest group of health care professionals working in hospitals, and influencing their approach to undernourishment may yield clinical benefits for elderly hospitalized patients.

The Norwegian guidelines, largely in line with European guidelines (Howard et al., 2006; Kondrup, Allison, et al., 2003; National Collaborating Centre for Acute Care, 2006), focus on four key recommendations that are to be implemented into hospital routines (The Norwegian Directorate of Health, 2009). First, for a routine identification of undernutrition and the risk of undernutrition, nutritional risk screening must be performed on all patients on hospital admission and subsequently weekly. Hence, the term “nutritional risk” covers both the concepts “the risk of undernutrition” and “undernutrition.” As undernutrition is easier to prevent than to treat, it is preferable to identify this condition as early as possible. This is especially true for older people whose nutritional status recovers more slowly (Roberts et al., 1994; Vellas, Albarede, & Garry, 1992). Second, when patients screen positive for nutritional risk, a treatment plan must be developed to establish severity and to consider appropriate nutritional treatment measures. In many cases, this is based on a more detailed nutritional assessment. Third, information on nutritional status and treatment must always be documented in medical records. Fourth, this information must be communicated to the next level of care in discharge letters.

Despite the fact that undernourishment can result in serious health consequences, such as prolonged hospital stays, delayed recovery, and increased complications (Norman et al., 2008), European studies demonstrate that this condition is often ignored for elderly patients in the hospital setting (Bonetti et al., 2013; Vanderwee et al., 2011; Volkert, Saeglitz, Gueldenzoph, Sieber, & Stehle, 2010). Norway seems to be no exception (H. D. Eide, Halvorsen, & Almendingen, 2015; Norwegian Board of Health Supervision, 2013; Tangvik, Guttormsen, Tell, & Ranhoff, 2011). The duration of an average hospital stay is decreasing in Norway (Norwegian Ministry of Health and Care services, 2009), as in the rest of Europe. However, shorter hospital stays do not diminish the significance of providing adequate nutritional care. On the contrary, as studies have shown that undernourished patients have longer hospital stays (Feldblum et al., 2009; Norman et al., 2008), this stresses the importance of identifying patients nutritionally at risk and initiating appropriate treatment.

Method

Design

The cross-sectional study was conducted at a university hospital in Norway. The university hospital provides health care services for approximately half a million people living in urban and rural municipalities. The patient population is heterogeneous with respect to ethnicity and socioeconomic factors, and covers about 10% of the Norwegian population. By operating as both a local and regional hospital, the university hospital offers locally based specialist services as well as more specialized services.

The study was developed with multidisciplinary collaboration between the researchers, the collegium at a nursing bachelor education program, representatives from the university hospital, and other experts in the field. Second-year nursing students undergoing their acute and clinical care practice studies at the university hospital collected data on nutritional risk and nutritional care for elderly patients. The students were instructed to participate as part of their obligatory clinical training and education. In this way, the students gained firsthand experience and increased awareness of nutritional risk and of how recommended nutritional care is carried out among elderly hospitalized patients.

Participants

Nine nutritional screening days were executed in the academic years 2011/2012 and 2012/2013, and in total, 173 nursing students were in touch with the patients. The ward nursing staff provided the nursing students with lists of all elderly (70 years or older) patients admitted on the included wards at 08.00 on the screening days, and these patients were asked to participate. Terminal patients, that is, patients assumed to be short-lived (less than 1 month) and patients diagnosed with dementia, were excluded. Also excluded were patients experiencing language difficulties, patients
who were not present at the time of the screening due to operations or examinations, and patients who were found unfit to participate, for example, due to unconsciousness or having contagious illnesses. The ward nursing staff in cooperation with the nursing students selected all eligible patients.

The study sample included patients admitted to 14 out of 16 medical and surgical wards at the university hospital, in addition to four associated wards. Due to differences in the patients’ diagnoses, two wards were divided into two subwards. A stratified sampling technique was utilized in the data collection (Cochran, 1963). It tends to produce samples that are most representative of the population in terms of reduced sampling error. Correspondingly, sample size calculations adjusting for possible cluster effect due to stratification were performed. The minimum sample size of 522 was required to achieve a 95% degree of confidence with a length 10% at most for a prevalence of 30% nutritionally at risk, while assuming an intraclass correlation coefficient (ICC) of 0.3 (Eide et al., 2015). In accordance with the stratified sampling technique, the number of elderly patients proportional to the ward size was consecutively included in the sample on each ward. The size of ward was defined as the daily average number of elderly patients based on the records from the last 6 months provided by the hospital’s analysis department. Sampling stopped on each ward when the intended number of patients was reached. A statistician was responsible for the statistical sampling design.

**Data Collection**

On the screening days, the students screened the patients for nutritional risk and filled in a questionnaire for every patient following instructions in a specially prepared manual. The questionnaire included information about age, gender, number of days in hospital, weight, height, body mass index (BMI), nutritional risk, and nutritional care.

**Nutritional measurements.** To identify nutritional risk, the students used the 2009 translated Norwegian version (The Norwegian Directorate of Health, 2009) of the Nutritional Risk Screening 2002 (NRS2002) form (Kondrup, Rasmussen, Hamberg, & Stanga, 2003). The form is recommended by the European Society for Clinical Nutrition and Metabolism (ESPEN) as well as the Norwegian Directorate of Health for use in the hospital setting, and is a widely used screening tool in Europe (Schindler et al., 2010) as well as in Norway (Tangvik et al., 2011). The NRS2002 aims to detect patients who will benefit from nutritional treatment due to undernutrition and/or increased nutritional needs resulting from disease (Kondrup, Allison, et al., 2003). According to the NRS2002 form, the patients were screened based on evaluations of BMI, recent weight loss, dietary intake, and disease severity. The screening form included an initial screening and a final screening. The final screening was conducted if the answer was “yes” to any one of the questions in the initial screening. Patients with a total score of 3 or more in the final screening were classified as nutritionally at risk. A score of 1 was added for patients older than 70. Weight was measured without shoes and outer clothes in either a standing or sitting position to the nearest 0.1 kg with apparatus available on the wards at the time of data collection, following usual hospital practice. Height was measured to the nearest 1 cm with a nonelastic measuring tape, either in a standing position against a wall without shoes or alternatively with half arm span if the patients had problems standing (Kwok & Whitelaw, 1991). The BMI was calculated as weight (kg) divided by the square of height (m). The age-independent BMI classification system presented by the World Health Organization (WHO; 2006) was used when categorizing patients’ BMI.

**Nutritional care.** Questions regarding the nutritional care used in identifying and treating nutritional risk was developed in collaboration with representatives from the university hospital, for example, the chef, a clinical dietitian, and a research and development nurse to ensure correct and relevant formulations. All questions were based on the recommendations stipulated in the Norwegian guidelines and the hospital’s food service practices at the time, and are shown in Tables 3 and 4. The questions concerned the use of nutritional risk screening tools and whether weight measurements were recorded on admission and then on a weekly basis, the coding of undernutrition diagnoses (E43, E44, or E46) in line with the International Statistical Classification of Diseases and Related Health Problems (ICD-10). Furthermore, the questions included initiation and type of nutritional treatment measures. The nursing students retrieved this information from the patients’ medical records. The availability of weighing apparatus at wards each screening day was also noted in the questionnaires to determine whether the wards had the proper equipment needed to routinely measure weight for their patients.

**Data Analysis**

Patient characteristics were described as means and standard deviations (SDs) or frequencies and percentages, as appropriate. Nutritional routines and treatment were presented in the form of frequencies and percentages. Differences in nutritional routines and treatment between those nutritionally at risk and those not at risk and between those with BMI ≤18.49 kg/m² and BMI ≥18.5 kg/m² were assessed by Fisher’s exact test. The analyses were conducted on anonymous data files. All tests were two-sided. The p values below 5% were considered statistically significant. The statistical program IBM SPSS statistics Version 22.0 for Windows was used for statistical analysis.

**Pilot Study**

To test the questionnaire used, a pilot study was performed at the university hospital in autumn 2010 and spring 2011. The
Table 1. Participation at wards (N = 508).

| Ward                      | Participation, n (%) |
|---------------------------|----------------------|
| Cardiac monitoring        | 6 (1.2)              |
| Cardiology medicine       | 37 (7.3)             |
| Ear-nose-throat/gynecology| 15 (3.0)             |
| Emergency medicine        | 23 (4.5)             |
| Gastro surgery lower      | 26 (5.1)             |
| Gastro surgery upper      | 18 (3.5)             |
| Hematology                | 14 (2.8)             |
| Heart medicine            | 30 (5.9)             |
| Infectious Medicine 1     | 37 (7.3)             |
| Infectious Medicine 2     | 13 (2.6)             |
| Vascular/thorax           | 18 (3.5)             |
| Lung medicine             | 50 (9.8)             |
| Neurology + Endocrinology| 28 (5.5)             |
| Neurology/stroke          | 14 (2.8)             |
| Urology                   | 22 (4.3)             |
| Orthopedics 1             | 40 (7.9)             |
| Orthopedics 2             | 46 (9.1)             |
| Specialized short-term unit| 20 (3.9)           |
| Rehabilitation neurology  | 36 (7.1)             |
| Renal medicine            | 15 (3.0)             |

Source. H. K. Eide, Šaltytė Benth, Sortland, Halvorsen, and Almendingen (2015).

The study involved totally 96 students screening 290 elderly patients, and showed that the bachelor nursing education program had an infrastructure that enabled the collection of data.

Table 2. Patient Characteristics.

| Gender | Total N | Men (%) | Women (%) | Missing |
|--------|---------|---------|-----------|---------|
|        |         | 257 (51.2)| 245 (48.8)| 6       |
| Age, years | | |
| Total N | 505 |
| M (SD) | 79.6 (6.4) |
| Missing | 3 |
| Number of days in hospital, days | |
| Total N | 498 |
| M (SD) | 5.3 (6.3) |
| Missing | 10 |
| BMI, kg/m² | |
| Total N | 492 |
| M (SD) | 24.9 (4.9) |
| Missing | 16 |
| BMI (WHO), kg/m² | |
| Underweight: ≤ 18.49 (%) | 32 (6.5) |
| Normal weight: 18.5-24.99 (%) | 236 (48.0) |
| Overweight: ≥ 25 (%) | 224 (45.5) |

Source. Eide, Šaltytė Benth, Sortland, Halvorsen, and Almendingen (2015).

Note. BMI = body mass index; WHO = World Health Organization.

Ethical Statement

The study was completed in compliance with the guidelines of the Helsinki Declaration and approved by the Internal Privacy Commission at the university hospital. The patients had to give oral informed consent prior to participation. The researchers received anonymously completed questionnaires and screening forms from the students. As the data were anonymous, the study was exempted from review by the Regional Committee for Medical and Health Research Ethics (Ref. No. 2011/2088 A).

Results

Participation

The study population comprised 508 patients admitted to 20 hospital wards (Table 1). Due to a lack of reporting by some students on patients who declined participation or were excluded, only approximate information regarding participation status was known. Of 1,059 patients for whom participation status was known, 145 patients (14%) declined participation, while 390 (37%) were excluded according to predefined criteria. However, as the consecutive inclusion of patients was performed, a somewhat low participation rate should therefore not affect the data quality.

Patient Characteristics

Patient characteristics are outlined in Table 2. The study population consisted of 48.8% women. The average age was 79.6 years (SD = 6.4). In total, 201 (39.6%) patients were nutritionally at risk, and mean BMI was 24.9 kg/m² (SD = 4.9). The patients had been admitted to the hospital on average 5.3 days (SD = 6.3) at the time of data collection. According to WHO’s cutoff values, 6.5% were identified as underweight, 48.0% as normal weight, and 45.5% as overweight. Of the 199 patients nutritionally at risk with non-missing values, 32 (16%) were identified as underweight, 115 (58%) as normal weight, and 52 (26%) as overweight.

Nutritional Routines

Standing weights were available on all screening days at 70% of the wards, while at 20% of the wards, standing weights were available only on at least one, but not all screening days. At 10% of the wards, standing weights were not available on any screening days. The availability of chair weights varied even more: at 40% of the wards, chair weight were available on all screening days; at 55% of the wards, chair weights were available on some screening days; while
at 5% of the wards, chair weights were unavailable on all screening days. Bed weight was available at only one ward on one of the screening days. “Not available” implied that the apparatus did not work, for example, the battery had run down or there was no apparatus at the ward.

Nutritional routines performed at wards are outlined in Table 3. Only six (1.2%) of 478 patients with nonmissing values had been screened for nutritional risk with a screening tool by the hospital staff. Weight on admission was recorded for 46 (9.5%) of 483 patients with nonmissing values. Among 129 patients staying for longer than 7 days, weight within the last week was recorded for 18 (14.0%) patients. Notably, weight was recorded more frequently \((p = .013)\) on admission for patients admitted to surgical wards (14.9%) compared with patients admitted to medical wards (6.9%), as well as more often \((p = .005)\) for patients who had been operated (18.0%) compared with patients not operated (7.6%). No differences \((p = .425)\) were observed in weight recordings on admission for patients nutritionally at risk and those not at risk, whereas patients with BMI \(\leq 18.49\) kg/m\(^2\) (21.9%) were weighed more frequently on admission \((p = .028)\) compared with patients with BMI \(\geq 18.5\) kg/m\(^2\) (8.9%) (Figure 1). Only seven (3.5%) of 199 patients nutritionally at risk with nonmissing values were diagnosed with undernutrition (E43, E44, E46).

**Table 3. Nutritional Routines Performed at Wards.**

| Parameter, N (%) | Total sample (N = 508) | Nutritionally at risk (n = 201) | Nutritionally not at risk (n = 252) | p value |
|------------------|------------------------|---------------------------------|------------------------------------|---------|
| Use of screening tool to identify nutritional risk? |
| No               | 367 (76.8)             | 152 (80.4)                      | 178 (73.6)                        | .666\(^a\) |
| Yes              | 6 (1.2)                | 3 (1.6)                         | 2 (0.8)                           |         |
| Do not know      | 105 (22)               | 34 (18)                         | 62 (25.6)                         |         |
| Missing          | 30                     | 12                              | 10                                |         |
| Weight recorded on admission? |
| No               | 437 (90.5)             | 175 (88.4)                      | 215 (91.1)                        | .425\(^a\) |
| Yes              | 46 (9.5)               | 23 (11.6)                       | 21 (8.9)                          |         |
| Missing          | 25                     | 3                               | 16                                |         |
| Weight recorded within last week for patients staying >7 days? |
| No               | 111 (86)               | 48 (85.7)                       | 50 (83.3)                         | .801\(^a\) |
| Yes              | 18 (14)                | 8 (14.3)                        | 10 (16.7)                         |         |

\(^a\)Fisherman’s exact test applied for 2 × 2 table including only “no” and “yes” categories on both variables.

Nutritional Treatment

Of the 201 patients nutritionally at risk, only 56 (31.5%) received some form of nutritional treatment, 122 (68.5%) did not receive any nutritional treatment, while nutritional treatment was nonexistent for 23 patients (Table 4). More \((p = .010)\) patients nutritionally at risk received some form of nutritional treatment compared with patients not at risk. Of the patients nutritionally at risk, those with BMI \(\leq 18.49\) kg/m\(^2\) (53.6%) received some form of nutritional treatment more often \((p < .001)\) than those with BMI \(\geq 18.5\) kg/m\(^2\) (22.8%) (Figure 1). Table 4 shows the types of nutritional treatment measures recorded on patients. Although not frequently recorded in the patients’ medical records, the most common treatment measures were adaptations to the eating situation, adaptations of the normal diet and supplement drinks. Adjusted diets, energy- and nutrient-enriched meals, snacks between meals, and enteral and parenteral nutrition were seldom used. Only eight (14.3%) of 178 patients nutritionally at risk with nonmissing values had been referred to a clinical dietitian.

**Figure 1. Weight recordings on admission and initiation of nutritional treatment, between patients with BMI \(\leq 18.49\) kg/m\(^2\) and BMI \(\geq 18.5\) kg/m\(^2\).**

Note. BMI = body mass index.

Discussion

This is the first Norwegian cross-sectional study of such scale assessing nutritional care used for identifying and treating nutritional risk among the hospitalized elderly. The results demonstrate that the nutritional care management for elderly patients without dementia at the participating hospital wards was inadequate. Recommended nutritional care
were not implemented in line with international and national guidelines, suggesting that the majority of the undernourished elderly, or those at risk of becoming undernourished, are neither identified nor treated according to their needs. Our results are in agreement with the findings of a qualitative study in the same research project that was conducted in parallel at the participating university hospital (Eide et al., 2015). This study, on nurses’ experiences, revealed that important elements in nutritional care for the undernourished elderly seemed to be missing in clinical practice. These studies verify and reinforce each other by showing similar results.

The use of any nutritional risk screening tool was practically absent in the hospital, and there were no established routines for measuring weight. There was also a lack of appropriate weighing apparatus, for example, chair and bed weights, which made it challenging to obtain the weight of diseased elderly who are often bed-bound and/or in severe pain. There did not seem to be a system to make it possible for the ward staff to routinely identify nutritional risk, which implies that many of the undernourished elderly or those at risk of becoming so are left unidentified. This finding of system failure is in accordance with other European studies on elderly hospitalized patients (Bonetti et al., 2013; Vanderwee et al., 2011; Volkert et al., 2010), as well as with the general hospital population (Bavelaar, Otter, van Bodegraven, Thijs, & van Bokhorst-de van der Schueren, 2008; Cereda et al., 2010; Schindler et al., 2010; Tangvik et al., 2011).

Although the Norwegian guidelines represent an important step toward better nutritional care, it remains to ensure that these guidelines are implemented in hospital practice. Interestingly, weight on admission was recorded more often at surgical wards and for patients who had been operated, although this was still rarely done. As weight information is often required before the initiation of anesthetics prior to surgery, many of these recordings were most likely obtained for reasons other than evaluating nutritional status.

If appropriately targeted, nutritional treatment can produce various clinical benefits. For example, a recent review
concluded that protein and energy supplementation produces a small but consistent weight gain in older people and may have beneficial effects on both mortality and complications (Milne, Potter, Vivanti, & Avenell, 2009). In this study, we found a large discrepancy between the actual presence of nutritional risk and patients receiving nutritional treatment. About two thirds of patients nutritionally at risk received no nutritional treatment at all. This is, however, not surprising, bearing in mind the inadequate nutritional routines. Nutritional treatment measures should always be implemented in the order of priority outlined in the Norwegian guidelines’ “nutritional ladder” (The Norwegian Directorate of Health, 2009). The simplest and cheapest way to provide nutritional treatment is to get the patient to eat more of the hospital food, either by adapting the normal diet or by serving an adjusted diet, snacks in-between meals, or energy- and nutrient-enriched meals (Howard et al., 2006; Nieuwenhuizen, Weenen, Rigby, & Hetherington, 2010). In addition, the eating environment is important (Howard et al., 2006; Nieuwenhuizen et al., 2010). However, some patients struggle to meet their nutrition requirements through the hospital food alone, and supplement drinks and artificial nutrition should be provided, in addition or as a substitute (Howard et al., 2006; Nieuwenhuizen et al., 2010). Simple treatment measures, such as adaptations to the eating situation or the normal diet and supplement drinks, were more commonly used than artificial nutrition. However, adjusted diet, energy- and nutrient-enriched meals and snacks between meals were seldom used. Because it was not possible to evaluate the treatment recorded on individual patients, we do not know whether the treatment was properly targeted. Nevertheless, our results demonstrate that undernutrition and the risk of undernutrition were clearly undertreated, a fact that corresponds to other European studies on elderly patients (Bonetti et al., 2013; Vanderwee et al., 2011; Volkert et al., 2010) and to the general hospital population (Bavelaar et al., 2008; Cereda et al., 2010; Schindler et al., 2010; Tangvik et al., 2011). Notably, few patients nutritionally at risk were referred to a clinical dietician, suggesting that they were rarely involved in the patients’ treatment.

All elderly patients are potentially at risk of becoming undernourished, including also patients with normal weight and those overweight. In this study, more than 80% of the patients nutritionally at risk were of normal weight or overweight. However, undernutrition and the risk of undernutrition are easily overlooked for these patients compared with patients who are underweight if nutritional risk screening is not routinely performed. Suominen et al. demonstrated that only the truly anorectic elderly patients were recognized as undernourished (Suominen, Sandelin, Soini, & Pitkala, 2007). We found similar tendencies in our study, as patients with BMI ≤18.49 kg/m² were weighed more frequently on admission and received nutritional treatment more often when nutritionally at risk, compared with patients with BMI ≥18.5 kg/m². The number of elderly people with high BMI is increasing in the world’s population, and it will be vital for health care professionals to be aware that undernutrition and the risk of undernutrition also occur among these patients.

Limitations

The high representativeness of the study sample was ensured by using a stratified sampling technique (Cochran, 1963) in data collection, warranting sufficient representation of each participating ward. Adjustment for possible cluster effect due to stratification was used in sample size calculations. Patients from nearly all somatic medical and surgical wards at the participating hospital were included in the sample, in addition to four associated wards. On this basis, the study sample can be considered representative, and it provides a reliable picture of nutritional care for elderly patients without dementia at somatic wards.

The large number of students involved in data collection might be seen as a shortcoming of the study. It can further be assumed that the students had little prior research experience. However, persons central in planning and carrying out this study were experienced in using students for the collection of research data (Sortland, Gjerlaug, & Harviken, 2013), and two persons central to the research project were available to the students at the hospital on all screening days. Moreover, an interrater agreement study conducted exhibited an acceptable quality of the screening data (Eide et al., 2015). The students were supervised in use of the screening form and the questionnaire prior to each screening day, and were instructed to participate to safeguard and optimize the data collection.

As information retrieved from the patients’ medical records may not necessarily reflect the actual treatment and care provided, due to poor documentation practices at the hospital, actual care practices may have been underreported. However, ensuring optimal documentation on nutritional matters is one of the key recommendations stipulated in the national guidelines (The Norwegian Directorate of Health, 2009) and forms an important part of adequate nutritional care. There was a considerable amount of missing data on nutritional treatment in this study, as well as frequent use of “do not know” when reporting the usage of nutritional risk screening tools at different wards. The lack of routines and treatment found in this study probably reflects the difficulties the students had in finding any information on nutritional matters in the patients’ medical records.

Conclusion

From the present study, we conclude that nutritional care recommended both internationally and nationally was not implemented at the participating hospital wards, suggesting that nutritional care for elderly hospitalized patients was not adequate. This implies that the majority of the elderly patients nutritionally at risk are neither identified nor treated according
to their needs. There is a clear need as well as a high potential for quality improvement in nutritional care so that the nutritional needs of the undernourished elderly or those at risk of becoming so can be fulfilled. The results presented in this study will be important to consider when improving nutritional care practices for the hospitalized elderly, and it will be essential that nursing students receive proper nutritional education and training to meet the substantial challenges related to undernourishment in the hospital setting. The article highlights the importance of having systematic nutritional care practices to make it possible for the ward staff to routinely identify nutritional risk and initiate appropriate nutritional treatment measures.

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