



ORIGINAL ARTICLE

# Nutritional routines and attitudes among doctors and nurses in Scandinavia: A questionnaire based survey<sup>☆</sup>

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## KEYWORDS

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## Summary

**Background & Aims:** Hospital malnutrition is prevalent, but nutritional practice in hospitals has a low priority. To improve the quality in nutritional routine, ESPEN has developed standards to improve the inadequate and insufficient nutritional treatments seen today. However, there is a discrepancy between the standards and clinical practice. This study was conducted to investigate nutritional practice in different hospital settings in relation to these standards (e.g.: screening of all patients, assessment of at-risk patients) among Scandinavian doctors and nurses.

**Methods:** A questionnaire about nutritional attitudes and routine was mailed to doctors and nurses in Denmark, Sweden and Norway.

**Results:** Altogether, 4512 (1753 doctors, 2759 nurses) answered the questionnaire. Both screening and assessment of at-risk patients differ between the countries. Nutritional screening was more common in Denmark (40%), compared to Sweden (21%) and Norway (16%). Measuring dietary intake in nutritional at-risk patients was more common in Denmark (46%), compared to Sweden (37%) and Norway (22%). However, all countries agreed that nutritional screening (92%, 88%, 88%) and

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measuring dietary intake (97%, 95%, 97%) were important, Denmark, Sweden and Norway, respectively.

*Conclusion:* There is a large discrepancy between nutritional attitudes and practice. The standards suggested from the ESPEN are not fulfilled.

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## Introduction

Nutritional support ranks low on the list of treatment and evaluation priorities.<sup>1</sup> This is in contrast to the high prevalence of undernutrition and inadequate nutritional treatment among hospitalised patients.<sup>2,3</sup> Insufficient nutritional intake, inflammatory stress metabolism and chronic disease, in addition to inadequate nutritional therapy, cause these poor nutritional conditions. Undernutrition has severe consequences, such as increased morbidity and mortality, which is unreasonable since, in many situations, undernutrition can be prevented and treated.<sup>4</sup> Therefore, nutritional screening and intervention is important in all patients, and especially in aged patients.<sup>5</sup> Hospitalised patients receive a variety of costly medical and surgical interventions and drug therapy, while adequate nutritional and fluid therapy often is neglected.

Specific nutrition standards were developed by American Society of Parenteral and Enteral Nutrition (ASPEN), to be used by the Joint Commission on Accreditation of Healthcare Organisations (JCAHO), an organisation that surveys the quality of care in most American hospitals.<sup>6</sup> Similar standards were later developed by the European Society of Clinical Nutrition and Metabolism, ESPEN,<sup>7</sup> and are also strongly supported by the resolution from the Council of Europe.<sup>8</sup>

The ESPEN standards focus on the following activities:

- screening of all patients on admission,
- assessment of patients with particular problems,
- prescription of nutritional intervention including notes in the patient records,
- monitoring the effect of nutritional intervention to the patient during the hospital stay,
- communicating the nutrition care to primary health care and nursing homes.

The nutritional standards provide a path for improving the inadequate and insufficient nutritional treatments in hospitals, as seen in all European countries.<sup>9</sup>

A Danish study of nutrition standards among doctors and nurses, showed a large discrepancy

between such standards and clinical practice, and concluded that the main barriers were lack of priority, lack of knowledge and lack of interest.<sup>10</sup> This was also found in an American study which showed lack of interest in nutritional therapy.<sup>11</sup> Medical therapies are quite similar in the Scandinavian countries, but there are known differences in the traditions of clinical nutrition in the three countries (see discussion for further details) and it is possible that these differences may be reflected in attitudes and practice of clinical nutrition. If this is the case, it may help to identify useful actions to promote the practice of clinical nutrition. This study was therefore conducted to investigate nutritional practice in different hospital settings in relation to ESPEN standards among Scandinavian doctors and nurses.

## Participants and methods

In April–June 2004 a questionnaire about nutritional attitudes and routines was mailed to 6000 doctors and 6000 nurses, in addition to all dietitians working in Denmark, Sweden and Norway.

Doctors working at units where nutritional problems were expected to be common and relevant were selected randomly from national databases of doctors. Therefore, doctors from departments of internal medicine, medical gastroenterology, oncology, general surgery and gastrointestinal surgery, orthopaedics—and anaesthesiology were chosen for this study.

No databases for nurses were available and they were therefore selected in a different manner. Five to ten questionnaires were sent to the head nurse of the same department as the selected doctors. He/she was asked to keep one questionnaire, and give the other to the 5–9 first nurses she met in the ward on that particular day. In this way, we managed to send the questionnaire to nurses working in the same departments as the doctors.

## The questionnaire

The questionnaire covered the ESPEN standards of nutritional practice, highlighted by the European Council,<sup>12</sup> and the questions were similar to those

in a previous Danish study.<sup>10</sup> Altogether, 61 questions were asked and 68 statements were to be commented upon, together with 6 demographic questions. For the statements, there were generally four answer options like entirely agree, largely agree, largely disagree and entirely disagree. The questionnaire sent to the dieticians differs from the questionnaire sent to the doctors and nurses. The doctors and nurses were asked to have focus on the ward they were working, while the dieticians were asked to have focus on the hospital. Their answers are therefore not comparable. The result from the study about dietician will be presented elsewhere.

The participants were asked to take time (20 min) to answer the questions and return the questionnaire anonymously in the prepaid envelope enclosed. To increase the response rate, the responders were offered the results of the investigation on request. A reminder was sent by mail to all participants after 3 weeks.

An analysis of non-responders was performed in a subgroup of 200 persons from Sweden. In addition to age, working hospital and speciality, year of education, three questions were asked by phone: Knowledge about enteral and parenteral treatment; Interest in clinical nutrition, and Relevance of nutritional treatment of undernourished patients at their department. The answers were compared to the answers from those who participated.

## Statistics

Descriptive statistics were used to calculate the response frequency. For nominal data, we used Pearson's  $\chi^2$ -test and for ordinal data we used Mann-Whitney *U*-test. The data were analysed using SPSS. Since there were three comparisons per questions (i.e. the 3 countries to each other), the level of significance was defined as  $P < 0.01$ . The study was performed according to the Helsinki declaration for human studies and in accordance with the ethical committee in all countries. This paper mainly presents the differences between the countries. Important differences between doctors and nurses are mentioned in the text while differences between specialities will be reported elsewhere.

## Results

Altogether, 4512 (1753 doctors and 2759 nurses) answered the questionnaire (Table 1) about nutritional attitudes and practice. The response rate from each country was quite similar ( $\approx 37\%$ ).

However, the response rate was higher among nurses compared to doctors, with no differences between the countries. The Swedish responders were slightly older, while the Norwegian responders had less clinical experience, as judged from shorter time from university graduation. The Danish responders had significantly more females. Doctors were older than nurses, and had longer working experience.

The "Analyses of non-responders" showed that the respondent group was more interested in nutrition ( $P < 0.01$ ), and that they found it more relevant than the non-responders ( $P < 0.001$ ). The non-responders were older ( $P < 0.001$ ), but no differences were seen in place of work or year from education.

## Screening

A significant difference in screening practice between the countries was found, as shown in Table 2. Nutritional screening on admission was most common in Denmark, while measuring body weight on admission was common in both Denmark and Sweden. In Norway, both were less common. Body weight was most commonly measured on admission, more common as a routine in Denmark and Sweden.

## Nutritional practice in at-risk patients

Table 3 is addressing nutritional practice for at-risk patients. Estimating energy intake and calculating energy requirement before giving nutritional therapy was more common in Denmark compared to Sweden and Norway.

Nutrition plans and prescription were seldom noted in the patients' records (average 14%) during the hospital stay, which is in contrast to the agreement that the treatment plan should always be in the patient records (89%) (Table 4).

Less than 1/3 had a routine of monitoring whether the patient reaches the goal for nutritional therapy. In contrast, most of the participants agreed that treatment goals should be monitored, more often in Denmark and Sweden (Table 5).

## Communication

Table 6 shows how nutritional treatment was communicated to the primary health care. About half of the responders, less in Denmark and Norway, answered that the nutritional plan is described in the discharge summaries. However, less than 1/3 answered that the duration of the therapy was

**Table 1** Demographic data of 1753 doctors and 2759 nurses answering the questionnaire.

	Norway	Sweden	Denmark	Total	P-value
Participants—doctors (nurses)	1473 (889)	1526 (901)	1513 (963)	4512 (2753)	
Response rate—doctors (nurse) (%)	37 (44)	38 (45)	38 (48)	38 (46)	
Age % ≥40 years	20	39	23	27	D = N D≠S, N≠S (P < 0.0005)
Male (%)	34	34	26	31	D≠S, D≠N (P < 0.0005) N = S
Graduated before 1990 (%)	38	59	51	49	D≠N≠S (P < 0.0005)
Working at university hospital (%)	46	39	44	43	D = N D≠S (P < 0.003) N≠S (P < 0.0005)

N = Norway, S = Sweden, D = Denmark.  
Level of significance: P < 0.01.

described. Most of the doctors and nurses in hospitals believe that primary health care workers have an insufficient nutritional knowledge, and that nutrition is a low-priority area in the primary sector.

Attitudes towards nutritional screening and treatment of at-risk patients are shown in Table 7. There is a high degree of agreement between countries as to how nutrition therapy should be performed. Most of the responders concluded that nutritional assessment, body weight measurement and energy intake calculation should be done as a general procedure. No differences were seen between doctors and nurses (not shown).

As is apparent from the above, there was a strong discrepancy between the daily nutritional practice and attitudes in all countries (Fig. 1). Overall, 45% answered that body weight was measured in all patients, while 93% said it should be routine. Further, only 26% answered that nutritional assessment was a routine for all patients, even though 89% said it should be routinely made.

More than 90% of the participants agreed in implementing initiatives like nutrition teams, resource persons, nutritional guidelines and increased education as means to increase the quality of nutritional practice, with no differences between doctors and nurses (not shown).

## Discussion

Four thousand and five hundred and twelve doctors and nurses participated in this largest Scandinavian questionnaire study about attitudes and practice in nutritional therapy. This is also the first study to compare three countries in relation to the ESPEN guidelines concerning the areas that are important to achieve good clinical nutritional therapy: screening; monitoring, recording and communication.<sup>8</sup>

We selected a specific group of doctors and nurses, working in departments where nutritional problems are common. Thus, the answers might not be representative for all doctors and nurses. The interest and knowledge in nutritional therapy might be higher in the studied group compared to doctors and nurses in general. Thus, the situation may be even worse in other departments.

A response rate of about 38% may be considered acceptable in a study like this.<sup>13</sup> Even though the questionnaire had been tested prior to the study, several participants commented that the questionnaire was too comprehensive. In

**Table 2** Nutritional screening as a routine procedure in all patients.

	Norway	Sweden	Denmark	Total	P-value
Evaluation of the patient's nutritional status on admission is standard procedure	16	21	40	26	D≠N≠S (P < 0.0005)
Evaluation of the patient's nutritional status during admission is standard procedure	21	28	32	27	D≠N, N≠S (P < 0.0005) D = S
Energy intake is routinely taken into account on ward round	16	19	18	18	N = S = D
It is a fixed routine to weigh patients on admission	26	55	52	45	D≠N, N≠S (P < 0.0005) D = S
It is a fixed routine to weigh patients at regular intervals during admission	11	31	30	24	D≠N, N≠S (P < 0.0005) D = S

Shows the percentage of respondents who answered "Yes, in all patients in my department".

N = Norway, S = Sweden, D = Denmark.

Level of significance: P < 0.01.

**Table 3** Nutritional practice in hospitals concerning patients who are at nutritional risk in the department.

	Norway	Sweden	Denmark	Total	P-value
Measurement of dietary intake is undertaken in admitted patients at nutritional risk	22	37	46	35	D≠N≠S (P < 0.0005)
It is a fixed routine to determine the patient's energy requirements before prescribing nutritional therapy	14	29	46	27	D≠N≠S (P < 0.0005)
It is a fixed routine to establish a desirable level for each individual patient's 24-h energy intake	9	20	32	21	D≠N≠S (P < 0.0005)

Shows the percentage of respondents who answered "Yes, in all patients at nutritional risk".

N = Norway, S = Sweden, D = Denmark.

Level of significance: P < 0.01.

**Table 4** Recording nutritional practice in at-risk patients.

	Norway	Sweden	Denmark	Total	P-value
A nutritional regime is always included in patient record	4	20	17	14	D≠N and N≠S (P < 0.0005) D = S
The nutritional regime should always be included in patient records*	83	92	92	89	N = S = D

N = Norway, S = Sweden, D = Denmark.

Level of significance: P < 0.01.

\*Shows the percentage of respondents who answered "Yes, in all patients at nutritional risk" or "Entirely or largely agree".

addition, the low response rate may reflect a low interest, ignorance or perceived lack of relevance. For this reason also, the real situation might be even worse.

The "Analyses of non-responders" showed that the respondent group was more interested in nutrition and that they found it more relevant than the non-responders.

**Table 5** Monitoring nutritional treatment in at-risk patients.

	Norway	Sweden	Denmark	Total	P-value
It is a fixed routine to monitor continuously whether patients are achieving the desired 24-h level of energy intake	7	19	29	19	D≠N≠S (P<0.0005)
If the patient has compromised nutritional status and/or a reduced dietary intake, a nutritional regime should be initiated within 72 h*	97	98	99	98	N = S = D
The desirable level of 24-h energy intake should be calculated for each individual patient*	89	92	92	91	N = S = D
There should be ongoing checks of whether patients at nutritional risk are achieving the desirable level of 24-h energy intake*	96	97	98	97	N = S = D

N = Norway, S = Sweden, D = Denmark.

Level of significance: P<0.01.

\*The percentage of the respondents who answered "Yes, in all patients at nutritional risk" or "Entirely or largely agree".

**Table 6** Nutritional challenges and communication with the primary health care. The percentage of respondents who answered "Entirely or largely agree".

	Norway	Sweden	Denmark	Total	P-value
The discharge summaries will always show the nutritional regime that has been initiated	47	51	35	34	D≠N≠S (P<0.01)
The discharge summaries will always show the duration of the nutritional therapy	32	32	28	31	N = S = D
Community nurses are well equipped to deal with malnourished patients	21	30	44	32	D≠N≠S (P<0.0005)
General practitioners have a good knowledge of the management of malnourished patients	24	25	27	25	N = S = D
It will be clearly stated who has responsibility for following up on the patient's nutritional problems upon discharge	32	30	34	32	N = S = D
We occasionally refrain from instituting nutritional therapy on discharge, as there is not adequate capacity in the primary sector to maintain the treatment	54	23	33	36	D≠N≠S (P<0.0005)
Nutrition is a low-priority area in the primary sector	75	55	63	65	D≠N≠S (P<0.0005)

N = Norway, S = Sweden, D = Denmark.

Level of significance: P<0.01.

Therefore, the result should be representative for departments where nutritional problems is relevant and the study is similar to other hospital studies.<sup>10,14</sup>

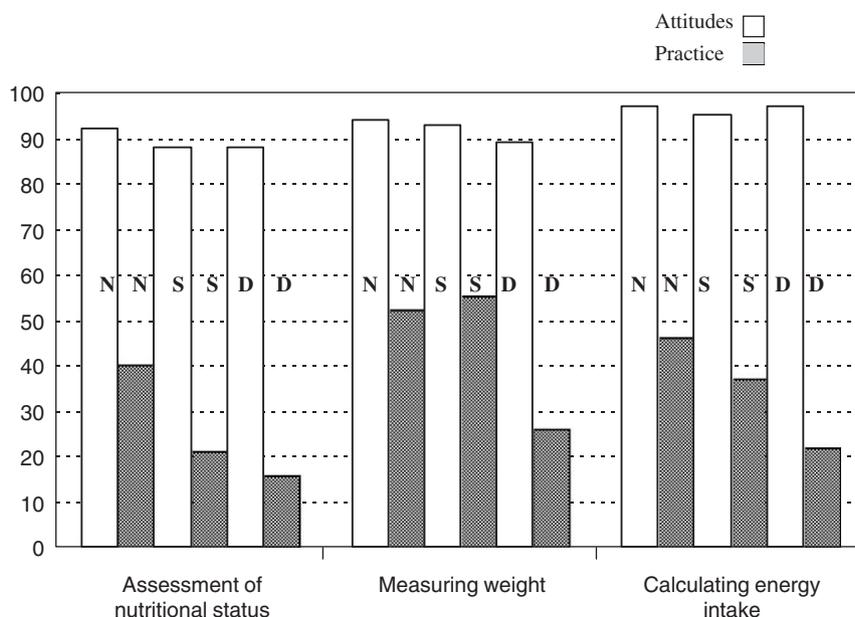
The 3 countries were similar in agreeing how nutritional practice should be done, suggesting that health care workers consider good nutritional practice to be important.

Even though nutritional practice was rather poor in all countries, there was a large agreement about the nutritional initiatives to be taken: simple screening methods, implementing nutrition support teams, resource persons, nutritional guidelines and increased education, in accordance with the recommendations from the Council of Europe.

**Table 7** Attitudes of how nutritional procedures should be performed in general.

	Norway	Sweden	Denmark	Total	
All patients ought to have an evaluation of their nutritional status on admission	88	88	92	89	N = S = D
All patients ought to have an evaluation of their nutritional status at least once a week during admission	87	83	86	81	N = S = D
The energy intake of admitted patients should, as a routine, be taken into account on ward rounds	91	88	91	90	N = S = D
Patients should be weighed on admission as a matter of fixed routine	89	93	94	93	N = S = D
Patients should be weighed at fixed intervals during admission, as a matter of routine	82	87	89	86	N = S = D
Calculation of the patients' energy requirements should be made before initiation of nutritional therapy, as a matter of routine	97	95	97	96	N = S = D

Shows the percentage of respondents who answered "Entirely or largely agree".  
 N = Norway, S = Sweden, D = Denmark.  
 Level of significance:  $P < 0.01$ .



**Figure 1** Differences in nutritional attitudes and practice in Norway (N), Sweden (S) and Denmark (D). The figures show the percentage who answered Yes, it is a routine (filled = Practice) and Yes, it should be a routine (open = Attitudes).

Overall, 25% agreed that nutritional screening was a routine for all patients. This is similar to findings in other surveys, which conclude that only a minor part of patients at risk of undernutrition is identified.<sup>15,16</sup>

Within the generally poor state of nutritional standards, there were several significant differ-

ences between the countries. Nutritional screening and therapy are more appreciated and focused in both Sweden and Denmark. Compared to Norway, nutritional screening was almost 3 times more common in Denmark, while measuring body weight on admission was twice as common in Denmark and Sweden. Treatment of

at-risk patients was also better in Denmark and Sweden.

Denmark has had a focus on treatment of general hospital related malnutrition for 10–15 years<sup>17</sup> and has performed several studies of implementation of guidelines for screening and treatment of patients at nutritional risk.<sup>18,19</sup> It is likely that such studies have increased the interest and awareness, and also increased the clinical skills in nutrition practice.

Sweden has a long tradition for clinical nutrition as a research field and as an academic discipline. Studies in nutritional formulas and nutritional therapies started with Wretling<sup>20</sup> and the number of Ph.D. thesis in nutrition is higher in Sweden than in Norway and Denmark. As a result of this, a nutrition syllabus may have a larger role in universities and colleges, leading to a higher level of education in nutrition among doctors and nurses.

Both Denmark and Sweden have national guidelines which comply with the standards mentioned in the Introduction. In Denmark, the Board of Health<sup>21</sup> has published these guidelines, and the guidelines are used in clinical practice.<sup>22</sup>

Both countries also have national societies in clinical nutrition, focusing on hospital malnutrition. Through national meetings, co-operation in creating national guidelines and advocating nutritional initiatives, national societies probably increase the interest for nutritional care among doctors and nurses, politicians and managers involved in quality assurance and development.

## Conclusion

This is the first international study comparing nutritional practice within 3 different countries to standards recommended by ESPEN.

This survey shows the attitudes and practice of the use of clinical nutrition support in different Scandinavian hospitals. The standards suggested from the ESPEN are not fulfilled. There is a large discrepancy between attitudes and reported practice. Good nutritional practice like screening and monitoring for nutritional problems was reported present only in a minor part of the respondents, even though 90% of the responders agreed that it was an important task to increase the efforts and focus on nutritional practice. This shows that implementing good clinical practice is difficult to accomplish.

Nutrition is an important part of medical treatment and in patient care. In recent years, an increasing number of successful initiatives to

improve the situation with respect to the nutritional treatment have been documented from all over Europe.<sup>4</sup> It seems therefore that it is time to combine the experiences from all these efforts in a common struggle to secure adequate nutrition for patients and prevent disease-related malnutrition in hospitals.

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