

Research Article

Providing Nutrition Care to Patients with Chronic Disease: An Irish Teaching Hospital Healthcare Professional Study

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An increasing prevalence of noncommunicable diseases (NCDs) and chronic illness is putting an ever increasing burden on healthcare services and delivery worldwide. Diet contributes significantly to the development of NCDs. Nutrition should therefore be viewed as an important aspect of patient care and be addressed by all healthcare professionals (HCPs). Previous work has highlighted a lack of competency around providing nutrition advice in HCPs; however, positive attitudes towards the importance of nutrition care are well documented in this group. The aim of this study is to document and compare Irish HCPs self-perceived competency towards incorporating nutrition care into practice. The NUTCOMP questionnaire was completed by 206 HCPs in Sligo University Hospital. The findings showed positive attitudes towards the incorporation of nutrition care into HCP practice; however, confidence in knowledge and skills was low, thus missing vital opportunities to prevent and/or treat chronic diseases and improve outcomes in acute illness. Previous nutrition education was associated with greater self-perceived knowledge about and skills in providing nutrition care to patients and positively associated with attitudes towards incorporating nutrition care into practice. HCPs expressed a desire and unmet need for additional and ongoing educational intervention in the area of nutritional intervention.

1. Introduction

An increasing prevalence of noncommunicable diseases (NCD) and chronic illness is putting an ever increasing burden on healthcare services and delivery worldwide [1]. Diet contributes significantly to the development of NCDs [2]; approximately 70% of adults are now overweight or obese and nutrition-related conditions account for greater than a quarter of all visits to primary care providers [3].

Nutrition should therefore be viewed as an important aspect of patient care and be addressed by all healthcare professionals (HCPs). Internationally, medical staff are viewed as a reliable and trusted source of information [4]. However, there has been an ad hoc approach to inclusion of nutrition educational programmes in medical and nursing curriculums in a number of countries [5, 6]. A recent study found that out of six developed countries Ireland was the only one without any specific guidance or guidelines on nutrition competencies for inclusion in the undergraduate medical

curricula [6]. In the five countries with guidance (UK, America, Canada, Australia, and New Zealand) there was little evidence of these guidelines being enforced [6]. Allied healthcare professionals aside from dietitians usually have no nutrition content included in their training, even though they have identified themselves as having a role in supporting the self-management of patients with long-term conditions and that this has the potential to include dietary advice [7].

Previous work has highlighted a lack of competency around providing nutrition advice in HCPs [8–10]; however positive attitudes towards the importance of nutrition care are well documented in this group [11–13]. The aim of this study is to document and compare Irish HCPs self-perceived competency towards incorporating nutrition care into day-to-day clinical practice and patient care. In order to better understand how to initiate and improve the delivery of nutrition information in clinical care, it is important that current area specific competency and attitudes are measured and understood.

2. Methods

2.1. Overview. Competence can be defined as an individual's ability to perform a particular task and includes three components: knowledge, skill, and attitude [14]. Nutrition care refers to any healthcare professional who attempts to improve a patient's dietary intake and this could be for the prevention or management of lifestyle-related conditions [15, 16]. This study utilized a cross-sectional survey to describe healthcare professional's knowledge, skills, and attitudes regarding the provision of nutrition care in clinical practice.

2.2. Survey Instrument. The validated NUTCOMP survey [17] was used to determine (1) confidence in knowledge about nutrition and chronic disease; (2) confidence in nutrition skills; and (3) attitudes towards nutrition care. The questions in each topic area were designed to broadly include all items that may be relevant in this area, rather than focusing on one condition or state, e.g., obesity. The survey also includes demographic and education questions to enable investigation of associations between these characteristics and HCPs self-perceived competency to provide nutrition care.

2.3. Data Collection. Surveys were distributed to all wards in Sligo University Hospital between March and September 2017.

2.4. Data Analysis. Data analysis was conducted using the SPSS statistical software package version 24. Frequency distributions were calculated for each survey item, as well as mean and range for participants' years of experience. Knowledge and skills scores were calculated for each participant by adding up the scores assigned to each answer (not confident=1; not very confident =2; somewhat confident = 3; very confident =4; and extremely confident = 5). Attitude scores were similarly calculated where completely disagree=1; somewhat disagree =2; neither agree nor disagree=3; somewhat agree=4; and completely agree=5. Individuals were grouped into four groups: GP/GP trainees; hospital doctor; nurses/nurse students; allied health. Independent between-groups ANOVA was used to determine any differences between these groups with regard to mean scores for knowledge, skills, and attitude. The data was tested for skewness and kurtosis and z-values were calculated, all of which were within normal ranges.

The relationship between reported previous engagement in continuing education on the topic of nutrition or reported previous nutrition education and (1) confidence in knowledge about nutrition and chronic disease, (2) confidence in nutrition skills, and (3) attitudes towards nutrition care was investigated using Pearson's Chi-squared tests. In order to comply with the assumptions underpinning Chi-square tests, categories were collapsed to ensure that <20% of cells remained below minimum counts. The Likert scale was collapsed into three groups: extremely or very confident; somewhat or not very confident; and no confidence. Pearson product-moment correlations were run to determine if there was a relationship between the three variables: knowledge,

skills, and attitude. Statistical significance was set at $p \leq 0.05$. Results are presented as mean \pm SD.

2.5. Ethics. Ethical approval for this study was granted by Sligo University Hospital.

3. Results

A total of 206 HCPs completed the survey; 6 were excluded because of incomplete data; 4 additional questionnaires were excluded from the analysis for Tables 1 and 2 as profession was not indicated in the survey. These surveys were included in the analysis in Table 3, which did not differentiate between HCP. Allied health professionals are comprised of pharmacists, physiotherapists, occupational therapists, and healthcare assistants. Participant characteristics are displayed in Table 1.

The majority of participating professionals were female (71%) aged between 25 and 44 years (68%), with a mean job duration of 12 (± 9.2) years. While 78% report completing a programme that contained some nutrition content, 78% also agreed or strongly agreed that there is a need for further nutrition education in their role. Only 28% have engaged in continuing education in the area of nutrition.

3.1. Knowledge. The mean score for confidence in knowledge about nutrition and chronic diseases was 19.6 (± 4.8) out of a maximum 35, with the mean marks per HCP group outlined in Table 2. There was no significant difference between HCPs ($p=0.072$). The area of greatest reported confidence was that of how body composition can impact the development of chronic disease (43%). The majority of respondents were somewhat or not very confident for all the questions in the knowledge section. Previous nutrition education (Table 3) was positively associated with confidence in how body composition can impact the development of chronic disease, the interaction of various foods and nutrients with medications, and familiarity with the most recently published peer-reviewed evidence regarding nutrition and chronic disease ($p < 0.05$). Knowledge about food and medication interactions was also positively associated with previous engagement in continuing education on the topic of nutrition ($P < 0.05$).

3.2. Skills. The mean score for confidence in nutrition skills was 30.2 (± 7.7) out of a maximum of 55, with the mean marks per HCP group outlined in Table 2. There was a significant difference between groups ($p=0.029$) with allied health professionals demonstrating less confidence in their skills than the other professional groups. The majority of respondents (62%) reported confidence in their ability to interpret biological data. With the exception of this skill, all other skills had the majority of respondents reporting being somewhat or not very confident. Previous nutrition education (Table 3) was positively associated with being more confident in the following skills: collecting information on the food an individual usually eats, recommending changes in food choices for an individual with chronic disease, determining appropriate food or nutrition goals for an individual with

TABLE 1: Participant characteristics (n=196).

Category	Subcategory	Frequency	Percentage
Profession	GP/GP trainee	15	7.7
	Doctor/med student	61	31.1
	Nurse/nurse student	106	54.1
	Allied health *	14	7.1
Gender	Male	58	29
	Female	142	71
Age	≤24 years	17	8.7
	25-34 years	68	34.7
	35-44 years	66	33.7
	45-54 years	37	18.9
	55+	8	4.1
Current job duration (years)	Mean ±SD = 12.1 ± 9.2	Range <1 year to 38 years	
Previous nutrition education (n=186)	Completion of a programme that did not contain any nutrition content	39	21
	Completion of a programme that contained some nutrition content	145	78
	Completion of a programme that was predominantly focused on nutrition	2	1
Previous engagement in continuing education on the topic of nutrition	yes	54	27.6
	no	142	72.4
Need of further nutrition education	Strongly disagree	17	8.6
	Disagree	6	3
	Neither agree nor disagree	20	10.2
	Agree	101	51.3
	Strongly agree	53	26.9

* Allied health professionals are comprised of pharmacists, physiotherapists, occupational therapists, and healthcare assistants.

TABLE 2: Comparison of self-reported nutrition care competence between GP/GP trainees; doctor/med students; nurse/nurse students, and allied health professionals.

Category	Profession	n	Mean	SD	F	P
Knowledge (maximum =35)	GP/GP trainee	15	18.3	3.5	2.36	0.072
	Doctor/med student	61	20.5	4.7		
	Nurse/nurse student	106	19.6	4.6		
	Allied	14	17.1	6.7		
Skills (maximum =55)	GP/GP trainee	15	30.3	6.6	3.085	0.029
	Doctor/med student	59	30.4	7.0		
	Nurse/nurse student	103	30.7	7.6		
	Allied	14	24.2	10.2		
Attitude (maximum =40)	GP/GP trainee	14	34	3.3	3.847	0.011
	Doctor/med student	59	34.3	4.9		
	Nurse/nurse student	106	35.9	3.7		
	Allied	12	32.8	4.9		

chronic disease, and formulating a meal plan for an individual with chronic disease ($p < 0.05$).

3.3. Attitude. When questioned on attitudes towards nutrition care respondents had a mean score of 35 (± 4.2) out

of a maximum of 40, with the mean marks per HCP group outlines in Table 2. There was a significant difference between groups ($p = 0.011$) with nurses having the most positive attitude towards nutrition care. The majority of participants (71%-95%) somewhat or completely agreed with all

TABLE 3: Healthcare professionals knowledge, skills, and attitude, ranked in order of agreement.

Items	Extremely or very confident n (%)	Somewhat or not very confident n (%)	No confidence n (%)
Knowledge			
How body composition can impact the development of chronic disease ^b	85 (42.7)	108 (54.3)	6 (3)
How food and nutrients influence development and management of chronic disease	69 (34.5)	125 (62.5)	6 (3)
How different body systems are affected by foods and nutrients	65 (32.5)	128 (64)	7 (3.5)
Guidelines for nutrition related management of specific chronic diseases	46 (23.2)	139 (70.2)	13 (6.6)
Irish healthy eating guidelines	41 (21)	135 (69.3)	19 (9.7)
How foods and nutrients interact with medications ^{a,b}	30 (15)	151 (75.5)	19 (9.5)
The most recently published peer-reviewed evidence regarding nutrition and chronic disease ^b	12 (6)	112 (56.3)	75 (37.7)
Skills			
Interpret biological data	121 (62)	69 (35.4)	5 (2.6)
Collect information on the food an individual usually eats ^b	85 (43.6)	104 (53.3)	5 (2.6)
Interpret compositional data	82 (42.2)	103 (53.1)	9 (4.6)
Maintain clear and concise records regarding the nutrition related assessment and advice provided to individuals	42 (21.7)	127 (65.5)	24 (12.4)
Provide nutrition care that results in improvements in the food that an individual usually eats	42 (21.6)	137 (70.6)	15 (7.7)
Recommend changes in food choices for an individual with chronic disease ^b	34 (17.5)	137 (70.3)	24 (12.3)
Determine appropriate food or nutrition goals for an individual with chronic disease ^b	29 (15)	140 (72.1)	25 (12.9)
Monitor and evaluate changes over time regarding the food an individual usually eats	28 (14.4)	142 (72.8)	24 (12.3)
Use the Irish guide to healthy eating to evaluate the appropriateness of an individuals food intake	24 (12.3)	134 (69.1)	36 (18.6)
Access the most recently published peer-reviewed evidence regarding nutrition and chronic disease	24 (12.3)	142 (72.8)	29 (14.9)
Formulate a meal plan for an individual with chronic disease ^b	18 (9.2)	122 (62.9)	54 (27.8)
Attitude			
	Somewhat or completely agree n(%)	Neither agree nor disagree n(%)	Somewhat or completely disagree n(%)
If the topic arises, it is important that I encourage my patients/clients to eat healthy food ^b	186 (95.3)	8 (4.1)	1 (0.5)
It is important that I encourage my patients to seek support from other health professionals if I am unable to meet their nutrition-related needs ^b	186 (95.4)	6 (3.1)	3 (1.5)
It is important that all individuals usually eat healthy foods regardless of age, body weight and activity levels ^b	182 (93.3)	6 (3.1)	7 (3.6)
It is important that I take every opportunity possible to encourage my patients/clients to eat healthy foods	182 (93.3)	8 (4.1)	5 (2.6)
Encouraging my patients to eat healthy foods is within my scope of practice	167 (85.7)	22 (11.3)	6 (3.1)
Encouraging my patients/clients to eat healthy foods is an effective use of my professional time	166 (85.6)	23 (11.9)	5 (2.6)
Providing specific nutrition recommendations to my patients that can assist with managing their chronic disease is an effective use of my time	158 (81.5)	21 (10.8)	15 (7.7)

TABLE 3: Continued.

Items	Extremely or very confident n (%)	Somewhat or not very confident n (%)	No confidence n (%)
Providing specific nutrition recommendations to my patients that can assist with managing their chronic disease is within the scope of my practice	139 (71.3)	27 (13.8)	29 (14.9)

^a Positively associated with previous engagement in continuing education on the topic of nutrition ($p < 0.05$).

^b Positively associated with previous nutrition education ($p < 0.05$).

statements. Previous nutrition education (Table 3) is positively associated with the opinion that it is important that they encourage patients/clients to eat healthy food, to seek support from other health professionals if the respondent feels unable to meet their nutrition-related needs, and a recognition that it is important that all individuals regularly eat healthy foods regardless of age, body weight, and activity levels ($p < 0.05$).

3.4. Relationship between Knowledge, Skills, and Attitude. There was a strong, positive correlation between knowledge and skills ($r = .673$, $n = 195$, $p = .000$), while only a weak positive correlation was found between skills and attitude ($r = .175$, $n = 195$, $p = .016$) and between knowledge and attitude ($r = .138$, $n = 195$, $p = .055$).

4. Discussion

To our knowledge, this is the first study to assess self-perceived knowledge and skills competency in nutrition as well as attitudes towards incorporating nutrition into chronic disease care in Irish HCPs. The findings showed positive attitudes towards the incorporation of nutrition care into HCP practice, but confidence in knowledge and skills was low.

HCPs are required, and justly so, to keep up to date with clinical practice guidelines in a variety of specialities as well as best practice guidelines in their profession, thus requiring a need for career-long learning to maintain evidence-based knowledge and skills [18]. Despite this, only 6% of this cohort were very confident in their ability to remain up to date with the most recently published peer-reviewed evidence regarding nutrition and chronic disease. Further research would be beneficial to study the perceived barriers to ongoing education and learning in the healthcare setting to ensure the delivery of international best practice in healthcare in Ireland.

The skill with the most reported confidence was that of interpreting biological data, a skill underpinning most, if not all, HCP roles. Low levels of confidence were reported in areas such as promoting suitable food or nutrition goals, monitoring food consumption, translating the Irish food pyramid into practical advice, and formulating meal plans. Previous studies have similarly shown low confidence in nutrition knowledge and skills [19–23]. It was also clear from the findings that previous nutrition education experiences are important in affecting confidence about nutrition care, with those who reported previous education in nutrition having more confidence in certain areas of their knowledge and skills. In addition, the majority of participants (78%) agreed

or strongly agreed with the statement that they need further nutrition education.

We should be prioritizing nutrition and lifestyle education not only to treat but also to prevent chronic disease. Globally we aim to reduce the incidence of noncommunicable disease by 2025 [24]; to achieve this nutrition needs to be included as a first line intervention [25–27]. For this to occur dietary advice needs to become more accessible in healthcare settings. Currently, a patient must be referred to see a dietician to receive nutrition advice [28]. GPs and doctors can justify this referral in most cases only if a patient is experiencing serious risks or has been diagnosed with a condition such as diabetes or coeliac disease where nutrition plays an integral role in the management of the condition.

Currently, therefore, expert nutritional advice in the Irish healthcare system tends to be, by default, interventional. It is a response rather than a solution. Overweight and obesity are well recognised modifiable risk factors for early morbidity and mortality [29, 30]; however as shown in this study, even though in terms of knowledge the area of greatest reported confidence was that of how body composition can impact the development of chronic disease, there was still only 43% of individuals confident in their knowledge of this area.

Very positive attitudes towards the incorporation of nutrition information were found and this was found to be higher in nurses than other HCPs; this is not a surprising result given that nurses can work quite closely with dietitians in the hospital setting providing insight into appetite, demeanour, dietary intake, bowel motions, and weight changes of patients. These results mirror those found elsewhere with healthcare professionals worldwide reporting an interest in and an awareness of the importance of nutrition in this setting [12, 13, 31, 32].

It could be concluded from this study and others that HCPs do not feel adequately trained to address diet and nutrition-related issues with their patients, thus missing vital opportunities to prevent and/or treat chronic diseases and improve outcomes in acute illness. They do however recognise the importance of nutrition and have positive attitudes towards its incorporation into care as well as an interest in further education in the area.

4.1. Limitations. The strategy used to recruit participants could have contributed to selection bias; individuals who agreed to complete the survey may have had a particular interest in nutrition which could have skewed the results. In addition, a response rate could not be calculated as it is

unknown how many HCPs read the survey and chose not to participate. Finally, the self-report aspect of this survey could have led to participants reporting socially desirable outcomes rather than a true reflection of their skills and attitudes.

4.2. Future Directions. Nutrition summer schools and weekend courses in nutrition provided in the UK to undergraduate medical students have proven very popular and provide opportunity to engage future healthcare professionals at an early stage in training [33]. It does however rely on an individual being interested enough to apply for and then attend this course in their free time. It is vital that future research determines whether nutrition-focused training results in an improvement in the effectiveness of nutrition care provided by HCPs and subsequently the health outcomes of patients in their care.

Making every contact count [34] is an initiative originally designed for HCPs and now being expanded for inclusion in primarily medical and nursing degree programmes with a longer term goal of educating all undergraduate HCPs and health promoters. The curriculum focusses on encouraging the HCP to ask patients about lifestyle behaviours related to chronic disease and includes education in the areas of tobacco use, alcohol and drug use, diet, and physical activity and it will be interesting to see if this improves confidence and competency in the delivery of nutrition information as well as these other important health promoting areas.

5. Conclusion

This study shows positive attitudes towards the incorporation of nutrition into clinical care as well as an appetite for professional development in the area; however confidence is currently low.

Data Availability

The data used to support the findings of this study are available from the corresponding author upon request.

Disclosure

This project received no specific funding and was carried out voluntarily by the authors.

Conflicts of Interest

The authors declare no conflicts of interest.

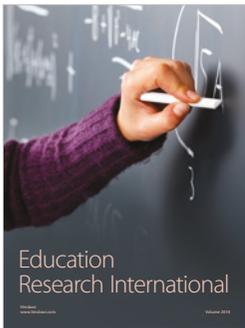
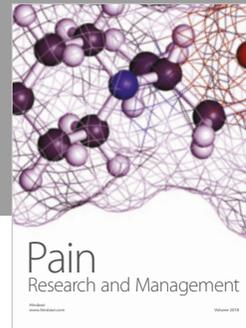
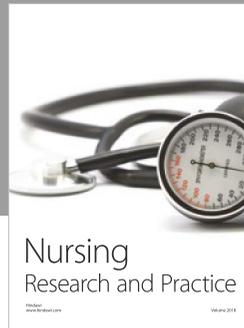
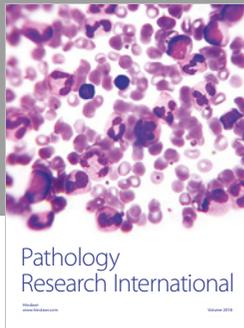
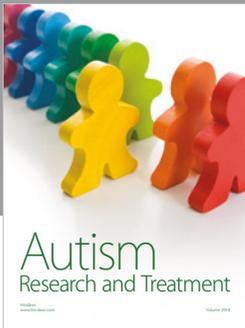
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