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## Original Research

# Medical students' perceptions regarding the importance of nutritional knowledge and their confidence in providing competent nutrition practice

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## ABSTRACT

**Objectives:** The objective of this study was to examine the perceived importance, knowledge and confidence in nutritional management in a sample of Australian medical students undertaking a 4-year postgraduate medical degree.

**Study design/methods:** In 2015, students in years 1–4 were anonymously surveyed to assess students' perceived importance of nutrition, and knowledge and confidence in nutritional management.

**Results:** A total of 131 first and second year (preclinical/yr 1–2) medical students (46% response rate) and 66 third and fourth year (clinical/yr 3–4) students (24% response rate) completed the questionnaire. Most preclinical students agreed that medical graduates should understand nutritional issues in managing cardiovascular disease (99%), type 2 diabetes (93%), coeliac disease (95%), and renal impairment (97%). However, students were limited in their confidence to demonstrate this knowledge (range of confidence: 26%–41%) for individual medical conditions. This improved for students in the clinical context of years 3 and 4, although it was still not optimal (range 26%–81%). Few year 3 and 4 students reported confidence in knowledge related to medicolegal issues, respiratory disease, nutritional guidelines and nutrition assessment (all <40%). However the majority (>80%) reported confidence in the dietary management of type 2 diabetes, cardiovascular disease and coeliac disease and >60% indicated they would refer onto nutrition professionals.

**Conclusions:** This cohort of postgraduate medical students recognize the importance of nutrition in disease. The number of students reporting increased confidence in nutritional management of a few select diseases where dietary management is one of the cornerstones of treatment (e.g. type 2 diabetes) rises throughout the course. However, students reported lower levels of knowledge in diseases where diet is secondary to other treatments and preventative strategies (e.g. respiratory disease). Filling the gap by integrating the

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nutritional management into the range of common chronic diseases during training has the potential to positively impact on patient health outcomes.

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## Introduction

The World Health Organization estimates that over 80% of current chronic disease burden is attributable to dietary and lifestyle factors<sup>1</sup> with the economic costs of this burden growing steadily.<sup>2</sup> In high- and middle-income countries, medical practitioners have the primary responsibility for patients' health and safety<sup>3</sup> including treatment and prevention of disease. With these factors considered, it is imperative that medical practitioners are competent and confident at providing accurate and effective nutrition practice.

There is now universal acknowledgement of the key role of lifestyle in the development of chronic disease, and so a core skill for today's medical practitioners is to assist patients to make lifestyle improvements that have been found to be effective in reducing chronic disease.<sup>4</sup> There is increasing recognition that medical graduates need to develop skills in providing simple nutritional messages, identify those at nutritional risk, or refer to dietitians or other specialists as appropriate.<sup>5,6</sup>

To date, limited curriculum time is devoted to the teaching of nutrition in medical courses worldwide.<sup>6,7</sup> This is concerning as medical education has historically been based on the principal that time spent learning content is proportional to the prevalence of disease within the population and also clinical competency.<sup>8</sup> More recently, competency-based models of education have been adopted in professional training programs.<sup>8</sup> Achievement of a set of specific competencies now forms the framework of the curriculum of medical courses in Australia.<sup>9</sup> Furthermore, the accreditation of medical courses now utilizes a competency-based model of education.<sup>10</sup>

In this changing medical education landscape, it is relevant to assess the perceived importance, competence and confidence in managing nutrition issues in medical students. This will assist in the identification of any gaps in current medical curricula and highlight teaching methodologies that are optimal to improve student learning outcomes. In 2013 we commenced curriculum mapping of the nutrition content of the Bachelor of Medicine Bachelor of Surgery (BMBS), a 4 year postgraduate course and found that there were few nutrition-related learning objectives and minimal formal assessment of nutrition knowledge and skills within the course. Following this, we wished to gather information on students' attitudes relating to perception of their nutrition knowledge and development of nutrition competencies.

Therefore, the aims of this study were to (1) examine the perceived importance medical students place on knowledge of the nutritional management of disease, and (2) describe the students' self-perceived nutritional knowledge and confidence in implementing evidence-based nutrition practice in

an Australian postgraduate medical student cohort in pre-clinical and clinical settings.

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## Methods

Medical students of the 4 year, graduate entry Bachelor of Medicine Bachelor of Surgery (BMBS) course at Deakin University, Geelong, Victoria, Australia, were surveyed in 2015. Ethics approval was received in July 2015 from Deakin University, Faculty of Health, Human Ethics Advisory Group (HEAG-H\_81). The first 2 years of this degree are largely pre-clinical (yr 1–2) and are based on-campus in a regional centre with high levels of non-communicable disease (Geelong). The core curriculum utilizes a problem-based tutorial learning structure supplemented by lectures. In the clinical years (yr 3–4), students undertake intensive hospital-based clinical training. Year 3 students have six clinical rotations, and year 4 students have four clinical rotations based primarily in rural and regional areas.

All 4 years of students were invited to participate in the questionnaire. For yr 1–2 students, the survey questions were displayed on a screen in the lecture theatre prior to the commencement of the lecture. Students were asked to log their responses via an audience response system (TurningPoint 5 Interactive PowerPoint® software). Clinical students (yr 3–4) received an e-mail from their clinical supervisor in semester 2, week 9 (year 3: 21-week semester; year 4: 18-week semester) requesting completion of the survey with a link to an online anonymous survey (©2015 Qualtrics, LLC). A follow-up reminder e-mail was sent in week 11 of the semester.

### Details of survey questions

The choice of disease states used as a context was based on chronic conditions that are covered in specific problem-based learning (PBL) cases used within the medical course at this university. These include conditions where dietary management is the cornerstone of treatment and conditions where nutrition is important for recovery but is not a recognizable condition requiring nutritional management. For yr 1–2, to evaluate students' attitude to nutrition, the survey included questions asking students whether they considered nutrition was important, related to seven specific medical conditions with a nutritional component. In addition they were asked their level of confidence in demonstrating their knowledge related to these conditions ([Appendices 1 and 2](#)).

The survey was modified for yr 3–4, removing seven of the questions relating to importance of nutrition in the seven

disease states while retaining the same seven questions related to confidence in demonstrating this knowledge. Ten additional questions were added. This modification was made to account for the more clinical nature of their current learning environment.

**Years 1 and 2:** The survey consisted of 20 questions. Fourteen questions focused on seven specific medical conditions (four where nutrition management was a fundamental cornerstone of treatment<sup>11</sup> and three questions on other disease states where the role of nutrition in treatment and management is important but less well established; [Appendix 1](#): questions 1-G and 2-G). For each medical condition there was one question on whether medical graduates thought that they should be able to demonstrate a good understanding of the key nutritional issues (attitude and relevance) for these specific medical conditions and one question on current confidence levels of demonstrating understanding of the key nutritional issues in the management of patients with these medical conditions (confidence and knowledge; Likert scale). The remaining questions asked students to identify in which learning environment they remembered receiving nutrition information, whether they thought it was important for a medical graduate to assess nutritional risk, and whether it was important to discuss the role of nutrition with patients (Likert scale).

**Years 3 and 4:** The survey consisted of 23 questions. Seven questions gathered information on specific medical conditions and asked about the level of confidence in demonstrating their nutritional knowledge related to these conditions (confidence and knowledge; Likert scale). Twenty-nine nutrition subject areas (based on established nutrition competencies)<sup>12,13</sup> were listed, and students selected those where their competence was high (allowing multiple responses). One question asked students to identify in which learning environment they received nutrition information (multiple responses); and five questions asked if it was important for a medical graduate to assess nutritional risk and discuss the role of nutrition with patients (Likert scale). Five additional questions asked students about their levels of confidence in their ability to undertake nutrition-related tasks such as collecting and advising on dietary patterns, knowledge of evidence-based nutrition guidelines and interpreting weight and height data (Likert scale). The last three asked whether they agreed that it was important to provide nutrition advice themselves and to refer onto other nutrition-related health professionals (Likert scale).

### Statistical methods

Descriptive statistics were calculated for each survey item including frequency distribution, mean and median responses using Microsoft Excel 2013.

The five-point Likert scales for responses to questions to all year levels were collapsed to two: agreement was collapsed to agree/disagree; confidence (very confident/not all confident); and importance (essential/not essential). Sources of nutrition knowledge, areas of nutrition competency and sources of nutrition knowledge allowed for multiple choice responses. Recent calculation of body mass index (BMI) was a yes/no response.

## Results

In 2015, 68 first year students and 63 second year students (total  $n = 131$ , yr 1–2) completed the survey out of a possible 138 and 134 students in each year level, respectively. This represented a response rate of 49% and 47% of the total year levels, respectively. Sixty-six yr 3–4 (clinical) students out of the 140 contacted (272 total students in clinical years; 24% response rate) completed the online survey.

### Importance of nutrition knowledge

The majority (79%–99%) of yr 1–2 students indicated it was important (agree or strongly agree) that medical graduates understand nutritional issues of disease related to elevated blood lipids, impaired renal function, bowel cancer, type 2 diabetes and coeliac disease. Fewer students (57%–62%) indicated that having an understanding of nutrition issues in postoperative wound healing and chronic obstructive airways disease (COAD) was important ([Table 1](#)).

### Confidence in demonstration of nutrition knowledge

Less than half of the year 1–2 students indicated high levels of confidence in demonstrating their nutrition knowledge in type 2 diabetes and elevated blood lipids ([Table 1](#)), but the number indicating confidence increased approximately two-fold in yr 3–4 students particularly for type 2 diabetes and coeliac disease ([Table 2](#)). In all areas, except renal impairment, the number of students reporting confidence in nutritional knowledge was greater in yr 3–4 compared to yr 1–2.

Lowest levels of confidence were reported in yr 1–2 students relating to knowledge of the nutritional management of respiratory disease, newly diagnosed bowel cancer and post-operative wound healing (all <10%). Less than 20% of yr 3–4 students indicated that they were confident in their nutritional knowledge of chronic obstructive airways disease (COAD) disease, newly diagnosed bowel cancer and renal impairment.

**Table 1 – Proportion of year 1 and 2 students reporting level of importance and confidence.**

Disease	Level of importance of nutrition knowledge (%) (very important/important)	Confidence levels in demonstrating this nutrition knowledge (%) (confident/very confident)
Elevated LDL cholesterol levels	99	38
Impaired renal function	97	35
Newly diagnosed bowel cancer	79	7
Type 2 diabetes	93	41
Postoperative wound healing	62	7
Chronic obstructive airways disease	57	7
Coeliac disease	95	26

LDL = low density lipoprotein.

**Table 2 – Proportion of year 1–4 students reporting level of confidence.**

Disease	Years 1 and 2 (%) (very confident/ confident)	Years 3 and 4 (%) (very confident/ confident)
Elevated LDL cholesterol levels	38	62 <sup>a</sup>
Impaired renal function	35	26
Newly diagnosed bowel cancer	7	13
Type 2 diabetes	41	81 <sup>a</sup>
Postoperative wound healing	7	42 <sup>a</sup>
Chronic obstructive airways disease	7	19
Coeliac disease	26	75 <sup>a</sup>

LDL = low density lipoprotein.  
<sup>a</sup> Chi-squared test:  $P < 0.05$ .

Furthermore less than 20% of these yr 3–4 clinical students strongly agreed/agreed that they were confident in the nutritional management of patients with dementia, burns, respiratory disease, nutrition-related medicolegal advice, and nutrition assessment (Table 3). However, there was a greater level of confidence in nutritional management of diabetes, obesity, coeliac disease, cardiovascular disease (CVD), osteoporosis and referring onto other nutrition professionals (>60%).

#### The importance of discussing nutrition and assessing nutritional risk in health

Most yr 1–2 students strongly agreed/agreed that graduates should discuss the role of nutrition in health with clients and

**Table 3 – Proportion of year 3 and 4 student's level of confidence.**

% students who strongly agreed/agreed	Subject areas
0–20	Nutrition-related medicolegal advice; validated nutritional assessment tools/procedures; COAD; dementia; burns
20–40	Drug nutrient interactions; withholding/withdrawing nutrition support; cancer; food insecurity; PCOS; renal disease; malnutrition; ethnic and religious groups dietary needs; anthropometric standards and reference ranges; IBD; evidence-based nutrition guidelines; food sources of nutrients in food supply; eating disorders; wound healing
40–60	Macro/micro nutrient requirements; nutritional requirements across the lifespan; food intolerance and allergy
60–80	Referral to nutrition professionals; type 1 diabetes; CVD; osteoporosis; coeliac disease; overweight/obesity
80–100	Type 2 diabetes

COAD = chronic obstructive airways disease; PCOS = polycystic ovarian syndrome; CVD = cardiovascular disease; IBD = inflammatory bowel disease.

assess nutritional risk (94–98%). Yr 3–4 students strongly agreed/agreed that assessment of nutritional status was essential (84%), most indicating agreement that doctors should promote healthy dietary choices (92%), but fewer indicated that medical graduates should provide nutrition counselling (69%).

#### Knowledge and confidence

Less than 20% of the yr 3–4 students felt confident in their knowledge of guidelines for the nutrition-related management of specific chronic disease (including cardiovascular disease and type 2 diabetes) and an even lower proportion felt confident in their ability to give advice in these areas (Table 4). More than half of the yr 3–4 students expressed confidence in interpreting patient height, weight and body composition and almost two-thirds reported calculating the body mass index (BMI) of a patient in the last 3 months. However less than half (43%) of them felt confident in collecting information on usual dietary intake and only 12% felt they could monitor and evaluate changes in dietary intake.

#### Importance of providing nutrition education

Most (83%) agreed that providing specific dietary recommendations to those with chronic disease and encouraging clients to see other health professionals if they were unable to meet their nutritional needs (99%) were all effective use of time. Only 18% of yr 3–4 were confident in their knowledge of nutrition in relation to chronic disease and only 12%–16% were confident in recommending changes in food choices (Table 4).

#### Sources of nutrition knowledge

Students of all year levels indicated they received approximately half of their nutrition knowledge through lectures yr

**Table 4 – Percentage agreement that year 3 and 4 students are confident to undertake nutrition-related activities.**

	Years 3 and 4 (%) strongly agree/ agree with statement
Confident in knowledge of nutrition guidelines in chronic diseases, for example, diabetes, cardiovascular disease	18
Confident in ability to interpret height, weight and body composition against reference ranges	64
Confident in collecting information on an individual's usual food intake	43
Confident in ability to recommend changes in food choices in individuals with chronic disease	16
Confident in monitoring and evaluating changes over time in food intake of an individual	12
Calculated body mass index of patients in last 3 months	67

1–2: 49% and yr 3–4: 59%, and 52% of yr 3–4 reported that nutritional issues were components of tutorials.

## Discussion

This study gives a snapshot of medical students' views on the importance of nutrition in disease management and their relative confidence. Preclinical students in years 1 and 2 indicated nutrition is fundamental to disease where dietary manipulations are cornerstones of treatment, for example, cardiovascular disease, type 2 diabetes, impaired renal failure and coeliac disease. However, few of these year 1 and 2 students indicated that they thought that nutrition had an important role to play in bowel cancer, respiratory disease and conditions where the role of nutrition in treatment and management is less well established.

Yr 1–2 students were less confident in the management of nutritional issues in patients than the yr 3–4 students. A high level of confidence would not be expected in the current teaching model at this university, as throughout years 1 and 2, the teaching model is problem-based learning complemented by classroom (lectures) and it is only really in the latter 2 years that students undertake practical activities in clinical settings. It is during the clinical years (years 3 and 4) that students would be realistically expected to develop an in-depth applicable knowledge of the management of complex and chronic disease processes (including prevention) in real-world clinical settings.

All students had low confidence in the nutritional management of patients with conditions that are not generally recognized as having a nutrition component, including respiratory disease, newly diagnosed bowel cancer and post-operative wound healing. Nutrition may have been seen as a low priority by students as the nutritional management of these conditions is not highlighted in the curriculum.

The students in yr 3–4 showed much higher confidence levels compared with preclinical students, particularly in the nutrition management of elevated blood lipids, type 2 diabetes and coeliac disease. This is to be expected as learning objectives (LOs) and assessment tasks with a focus on nutrition were present for the above diseases whereas no LOs were present for nutrition and bowel cancer and COAD.

When clinical students were asked to respond to questions related to their confidence levels in topics within the nutrition competency framework,<sup>12,13</sup> few indicated that they were confident in performing nutrition assessment. This is of concern as identification of nutritional risk is the first step to appropriate treatment and referral to nutrition specialists. Another area where few students reported confidence was in COAD, which affects more than 1 in 20 Australians aged over 55 years and in 2012 was the fifth leading cause of death in Australia.<sup>14</sup> Nutritional status is an independent determinant of COAD outcome and assessment of nutritional status and nutritional support is needed to maximize positive health outcomes, even though this disease is not immediately recognizable as a nutritional disorder.<sup>15</sup> Similarly low confidence in nutrition-related medicolegal advice was evident. Knowledge of the legalities around end of life nutrition care and withdrawal of assisted nutrition and hydration are at low levels which has been found in previous studies.<sup>16,17</sup>

The Royal Australian College of General Practitioners recommends that practice is based on best available evidence and the opinion of consensus panels of peers.<sup>18</sup> It is of concern that few students close to graduating indicated that they were confident in providing advice supported by evidence-based nutrition guidelines as there is a significant amount of nutrition misinformation in the public domain. The situation may be worse than reported here, as few nutrition-related assessment questions are currently included in the curriculum and minimal summative assessment tasks are included on this topic. This is of concern as it is generally recognized that assessment drives learning.<sup>13</sup> Doctors are in an ideal position to ensure that clients are given scientifically based nutrition advice especially in areas where specialist nutrition advice may be limited, for example, rural areas. Students from all year levels felt that it was an effective use of time to discuss nutrition with patients and assess nutritional risk, yet their confidence in performing these tasks was low. The concern here is that even though referral to other nutrition professionals is seen as important, if nutritional assessment is not undertaken by medical practitioners, many nutritional problems may go undetected and referrals not made appropriately.

The small sample size may limit the representativeness of the findings. In yr 3–4 as the surveys were completed by less than half of the student populations, the results are likely to be skewed to those with an interest in nutrition. This bias is less likely for yr 1–2 as the questions were delivered prior to a lecture on a completely unrelated topic; however, the overall response rate from the total student cohorts is less than 50%. This low response rate is similar to other studies in similar settings.<sup>19</sup> This survey only tested student confidence asking questions about self-perceived level of knowledge and understanding. We have no information on their actual nutritional knowledge. In order to ensure that the questionnaire did not overburden students, we had to limit the types of medical conditions chosen on which to frame the questions.

Other methods of evaluation such as interviews or focus groups would be useful to gain additional information unable to be captured within surveys which could help address the gaps identified, and we have plans to gather this qualitative information in the future. However within the limited sampling framework, these results do provide some insight into student perceptions of the importance and confidence with respect to nutritional management of conditions throughout their training. Future research could also examine the results of nutrition-related assessment tasks included in the curriculum and assess the relationship between level of nutrition knowledge, assessment, attitudes, confidence and knowledge.

## Overall

Medical students at this university recognize the importance and impact of nutrition in the prevention and management of disease. Their confidence in managing the nutritional needs of patients increases as they progress through the course. Most students in the latter 2 years of their course feel confident in their knowledge of nutritional management of diseases where diet is the cornerstone of treatment, for example, type 2 diabetes and hyperlipidaemia. However it is of concern that

students are not aware of the important role nutrition plays in chronic diseases such as cancer and respiratory disease. This highlights a gap in the curriculum and students need to be able to recognize the impact that malnutrition (both over and undernutrition) has on hospitalization rates and morbidity and mortality and develop skills in addressing malnutrition.

A medical curriculum that includes the development of skills in basic nutritional assessment, enables students to develop a greater awareness of evidence-based nutrition guidelines along with medicolegal nutritional issues, is likely to have a positive impact on health outcomes in the long term.

## Author statements

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### Competing interests

None declared.

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## Appendix 1. Questions given to year 1 and 2 students

1. Medical graduates should be able to demonstrate a good understanding of key nutritional issues in the management of patients with:
  - A. elevated LDL cholesterol
  - B. impaired renal function
  - C. newly diagnosed bowel cancer
  - D. type 2 diabetes
  - E. chronic obstructive airways disease
  - F. coeliac disease
  - G. postoperative wound healing

Five-point Likert-type scale for each condition:

- 1 strongly agree
- 2 agree
- 3 unsure
- 4 disagree
- 5 strongly disagree

2. How confident are you that you could CURRENTLY demonstrate a good understanding of key nutritional issues in the management of patients with:

- A. elevated LDL cholesterol
- B. impaired renal function
- C. newly diagnosed bowel cancer
- D. type 2 diabetes
- E. chronic obstructive airways disease
- F. coeliac disease
- G. postoperative wound healing

Five-point Likert-type scale for each condition:

- 1 very confident
- 2 confident
- 3 unsure
- 4 a little confident
- 5 not at all confident

3. Where have you gained the MOST RELEVANT knowledge on nutrition during your medical course at Deakin University? Please select the most appropriate response.

1. lecture content
2. tutorial discussions
3. through assessment tasks, for example, assignments and examination preparation
4. problem-based learning cases
5. not gained relevant information on nutrition

4. How important is it for medical graduates be competent in:

- A. discussing the role of nutrition in health?
- B. assessment of nutritional risk (over or undernutrition)?

Five-point Likert-type scale for each point:

- 1 essential
- 2 important
- 3 desirable
- 4 not at all important
- 5 don't know

- 3 unsure
- 4 a little confident
- 5 not at all confident

2. In your learning experiences in years 3 and 4 at Deakin University can you identify where have you gained knowledge on nutrition. Please tick as many responses as appropriate:

1. tutorial discussions
2. lecture content
3. through assessment tasks, for example, assignments and exam preparation
4. not gained relevant information on nutrition

3A How important is it for medical graduates to be competent in discussing the role of nutrition in health?

3B How important is it for medical graduates to be competent in assessment of nutritional risk (over or undernutrition)?

3C How important is it for medical graduates to be competent in assessment of nutritional status?

3D How important is it for medical graduates to be competent in promoting healthy dietary choices?

3E How important is it for medical graduates to be competent in providing nutrition counselling to patients?

Five-point Likert-type scale for each point:

- 1 essential
- 2 important
- 3 desirable
- 4 not at all important
- 5 do not know

4. Which (if any) of the following subject areas relating to nutrition do you feel competent in after your 3/4 years of medical training: (please select more than one response if appropriate)

- macronutrient and micronutrient requirements
- nutritional requirements across the lifespan including infancy, childhood, adolescence, adulthood, pregnancy, lactation and later life
- anthropometric standards and reference ranges
- cardiovascular disease
- osteoporosis
- cancer
- malnutrition
- diabetes – type 1 diabetes
- diabetes – type 2 diabetes
- respiratory disease
- eating disorders
- dementia
- food intolerance and allergy
- polycystic ovarian syndrome
- coeliac disease
- inflammatory bowel disease
- renal disease
- burns
- wound healing
- overweight/obesity
- drug nutrient interactions

## Appendix 2. Questions given to year 3 and 4 students

1. How confident are you that you could CURRENTLY demonstrate a good understanding of key nutritional issues in the management of patients with

- A. elevated LDL cholesterol
- B. impaired renal function
- C. newly diagnosed bowel cancer
- D. type 2 diabetes
- E. chronic obstructive airways disease
- F. coeliac disease
- G. postoperative wound healing

Five-point Likert-type scale for each condition:

- 1 very confident
- 2 confident

- food sources of nutrients in the current food supply
- food insecurity
- ethnic and religious groups' dietary intakes
- validated nutritional assessment tools and procedures
- evidence-based nutrition guidelines
- withholding/withdrawing of nutrition support
- nutrition-related medicolegal advice
- referral to nutrition professionals

- 5A Please rate how confident you are in your knowledge of guidelines for the nutrition-related management of specific chronic diseases (including type 2 diabetes and cardiovascular diseases)
- 5B Please rate how confident you are in your ability to interpret data about height, weight and body composition against reference ranges.
- 5C Please rate how confident you are in your ability to collect information on the food that an individual usually eats (e.g. diet history, food frequency questionnaire)
- 5D Please rate how confident you are in your ability to recommend food changes for an individual with chronic disease.
- 5E Please rate how confident you are in your ability to monitor and evaluate changes over time regarding the food an individual usually eats

*Five-point Likert-type scale:*

- 1 *very confident*

- 2 *confident*  
 3 *unsure*  
 4 *a little confident*  
 5 *not at all confident*

6A Please rate your agreement with the following statement: if the topic arises it is important to encourage my patients/clients to eat healthy food

6B Please rate your agreement with the following statement: providing specific nutrition recommendations to my patients/clients that can assist with managing their chronic disease is an effective use of my professional time.

6C Please rate your agreement with the following statement: it is important that I encourage my patients/clients to seek support from other health professionals if I am unable to meet their nutrition-related needs

*Five-point Likert-type scale:*

- 1 *strongly agree*  
 2 *agree*  
 3 *unsure*  
 4 *disagree*  
 5 *strongly disagree*