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Evaluation of Newly Graduated Doctors Attitude, Efficacy and Knowledge towards Nutritional Care in General Practice

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Abstract

Globally there is increased emphasis on medical nutrition therapy, that's incorporating nutrition care as part of daily clinical care in order to promote the health of patient and public. To assess nutrition related knowledge, attitude and perceived self-efficacy in nutrition care of newly graduated doctors. A cross-sectional study design were carried out from December 2023 till January 2025, in which all newly graduated medical doctors, from both colleges of medicine that present in Mosul city in Iraq, during the years 2022, 2023, and 2024 were eligible to participate. Data were collected using valid and reliable questionnaire form. A total of 392 newly graduated medical doctors participated, with response rate of 93%, the average nutrition related knowledge was 62%, with 52.8% had positive attitude towards nutritional care and 12% had confidence in providing nutritional counselling. Newly graduated medical doctors had good knowledge and positive attitudes regarding nutrition care but had low levels of perceived efficacy in proving nutrition care, this suggest the need for implementing strategies that help to enhance medical doctors confidence level in providing nutrition care during their daily practices.

Keywords: *Attitude, Confidence, Medical Doctors, Nutritional Care, Self-efficacy.*

Introduction

Globally, The growing increase in the prevalence of chronic diseases like diabetes and hypertension is mainly contributed to poor lifestyle behavior and diet [1]. One of the major keys for improvement and prevention of these chronic diseases with lower adverse effect and cost in comparisons to pharmacological therapy is healthy diet and nutrition [2].

Doctors, whether joiners or resident or general practitioners and even professionals are one of the valid and reliable sources of information on healthy food and nutrition. Most of patients with chronic diseases and their families expected to receive information or advice from their doctors. Accordingly, it's important for all medical doctors to have good nutrition and practice to translate it in effective way for prevention and management of these diseases [3-5].

Most of the studies that evaluated nutritional care knowledge, practice and experience whether conducted on medical students during their early educational years in medical schools or among medical doctors reported inadequate knowledge and practices this were partly due to that most of medical schools curriculums were emphasizing on disease management rather than prevention, in addition to limited time for continuing nutrition education. This highlights the need for improving nutrition education of medical schools in order to deliver better nutrition care for population [6-8].

With the increase of the prevalence of non-communicable diseases in Iraq that accompanied by changes in diet habits and

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lifestyle [9]. It would be important to incorporate an educational interventions to improve nutrition educational practices during medical schools or continuing medical education on nutrition to achieve better health promotion of the population. Accordingly, the present study aimed to assess nutrition related knowledge, attitude and perceived self-efficacy in nutrition care of newly graduated doctors.

Material and Methods

The present study was approved by scientific committee of family and community medicine department of college of medicine, university of Mosul. A cross-sectional study design were carried out from December 2023 till January 2025, in which all newly graduated medical doctors, from both colleges of medicine that present in the city, during the years 2022, 2023, and 2024 were eligible to participate. A total of 385 doctors needed to be collected depending on the following equation [10].

$$n = \frac{z^2 p(1-\rho)}{\dot{e}^2}$$

Where,

n= sample size,

Z= confidence level (95%)

P= population proportion (50%)

e= margin of error (0.05)

To collect the needed sample, a simple random technique were carried out in which every 5th name in the list containing the names of all doctors graduated in these years that obtained for Iraqi Medical association in Ninevah, registration department were included. All doctors sampled were invited to participate to this study and told that their responses would be anonymous, and those who accept to participated, an informed written consent were obtained from them.

Data collected using a special questionnaire form that was adopted from previous validated studies [11-15] and were reviewed by experts in nutrition and health education and found to be content valid. In addition, the questionnaire were pre-tested on a sample of 20 newly graduated medical doctors, in order to detect the clarity, and distressfulness of the questionnaire. The time needed to complete the form were between 20 – 25 minutes.

The final questionnaire form measured the following variables:

1. Demographic characteristics, which were age, sex and name of medical college graduated from.
2. Knowledge assessment (17 questions), each responses were assigned as a score of 1 for every correct answer, summed and computed out of 100%.
3. Attitude assessment (6 questions) were assessed based on 3 point Likert scale of 1-3 (1= disagree; 2= neutral; 3= disagree).
4. Confident level in providing nutritional care (7 questions), were assessed based on 3 point Likert scale of 1-3 (1= un confident, 2= neither confident nor un confident, 3= confident).
5. Satisfaction with nutrition education and training received during medical college education years were assessed by 2 answers either dissatisfied or satisfied.

Statistical Analysis

Data were analyzed statistically Statistical Package for Social Science (SPSS) 19.0. Descriptive statistics (mean, standard deviation and frequency) were calculated. In addition chi square test was used to determine possible relation among variables. A p value less than 0,.05 were regarded significant in this analysis.

Results

Only 392 of a total of 420 randomly chosen newly graduated medical doctors, accepted to participated in this study and completed the questionnaire form (response rate = 93%). The mean age was 24.9 ± 0.04 years, 52.3% (n= 193) were females and 47.7% (n= 176) were males.

The data of assessment of the nutrition knowledge delivered to 393 medical doctors, checking their understanding over three fundamental areas of nutritional medicine. The doctors revealed maximum level of knowledge in the fields of nutrients advised for disease prevention, (70.3 ±1.07) over seven assessment questions. This proposes that medical professionals have a reasonably enough understanding of how certain nutrients can perform preventive roles in sustaining health and reducing disease hazards. Conversely, the minimum performance was achieved in dietary advices for cardiovascular diseases, where doctors achieved (49.4±1.17) over five assessment questions. This result reveals a significant knowledge gap in an area that is fundamentally relevant to clinical setting, given the prevalence of cardiovascular diseases and the great role that nutritional interventions do in their management and prevention. Knowledge of metabolic diseases, including diabetes and obesity topics, allocated in the middle range (64.3±1.58) on two assessment items. Meanwhile this responses was better than their cardiovascular knowledge, it still determine the gap for improvement in knowledge these increasingly common metabolic conditions. Overall assessment knowledge (62.3±0.91), demonstrating that their nutrition knowledge over these critical topics was relatively acceptable but not optimum. Also the narrow standard deviation confirm that the doctors knowledge were fairly consistent (Table 1).

Table 1. Medical Doctors Mean Scores Predicted by Nutrition Knowledge Assessment Topics

No.	Nutrition Topic	Mean±SD (n=393)
1	Dietary recommendations for cardiovascular diseases (5 items)	49.4±1.17
2	Nutrients recommended for prevention of diseases (7 items)	70.3±1.07
3	Diabetes and obesity (2 items)	64.3± 1.58
	All topics	62.3±0.91

This attitudes of 393 doctors toward different aspects of nutritional care, demonstrating both strong agreement in some areas and significant disagreement in others. The strongest agreement (98%) among physicians arose on the fact that nutrition assessment must be part of normal medical care practice. In the assessment of responsibilities, opinions were fairly split (44.9% agreed, 28% neither agreed nor disagreed, and 27% disagreed), and revealed that application of nutrition knowledge is a duty of all medical care providers. This connoted ambiguity about professional roles and boundaries in nutritional counseling. Majority (63.3%) of physician agreed that nutritional advise should be part of routine care for all patients. requiring further boosting programs to enhance the opinion of others who disagree or neutral. A total of 56.4% of doctors agreed that severe malnutrition as a medical emergency, while 16.8% were neutral and 9.2% disagreed, perhaps this relatively weak rate of agreement proposes that some physicians underestimate the urgency of severe nutritional deficiencies. A total of 59.7% recommended nutritional interventions as an adjunct to the therapeutic approach. Only 48.5% assumed that doctors counseling can change patient nutrition choices and physical activity, while a quite high rate 44.1% disagreed with that (Table 2 and Figure 1).

Table 2. Attitude Assessment towards Nutritional Care of the Participants

	Attitude assessment	**Disagree, n (%)**	**Neutral, n (%)**	**Agree, n (%)**
1	Nutrition assessment must be part of standard patient care	6 (1.5)	2 (0.5)	384 (98)
2	Discussing nutrition information is a duty of all medical care providers	106 (27)	110 (28)	176 (44.9)
3	Nutritional counselling must be part of routine care to all patients	85 (21.7)	51(13)	256 (63.3)
4	Acute severe malnutrition regarded as a medical emergency	36 (9.2)	66(16.8)	221 (56.4)
5	If nutritional counselling given to patients, they will adopt healthier diet choices	90(23)	68(17.3)	234 (59.7)
6	Doctors advices can change patient lifestyle (nutrition and physical activity)	173 (44.1)	29(7.4)	190 (48.5)
	Total	53(13.5)	132(33.7)	207 (52.8)

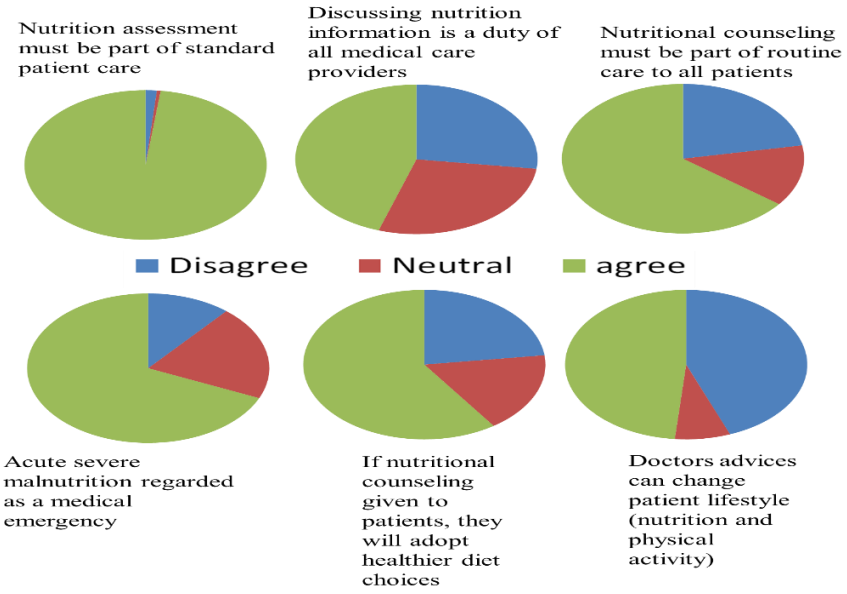

Figure 1. Attitude Assessment towards Nutritional Care of the Participants

The newly graduated doctors revealed their interest confidence in basic anthropometric assessments, with 71.2% were confident in measuring BMI and waist-to-hip ratio as per gender. Conversely, they demonstrated their lowest confidence in complex nutritional advising tasks, since only 8.7% were confident in advising food based on food pyramid, and 9.4% confident in offering nutritional advise about calories from variety food types. The participants were moderately confident (40.3%) in the explanation of the function of dietary fats, particularly saturated fats, in elevating blood cholesterol, and the understanding (40.3% confident) of the impact of omega-3 fatty acids in the protection against cardiovascular diseases. Regarding the nutritional counseling for patients with diabetes mellitus according to type of diets selection, participants were mostly unconfident (59.7%), among them only (19.9%) were confident for this task. The

participants feeling regarding the prescription of nutritional interventional therapy were inconclusive, with nearly one-half felt unconfident about commencing nutritional therapy for severely malnourished patients, however, still 26.3% were confident (Table 3 and Figure 2).

Table 3. Newly Graduated Self Confidence in Providing Nutritional Care

	Items	**Unconfident, n (%)**	**Neutral, n (%)**	**Confident, n (%)**
1	Calculating BMI and WHR based on gender	39 (9.9)	74(18.9)	279(71.2)
2	Recommending diet for patients with diabetes mellitus	234(59.7)	80(20.4)	78(19.9)
3	Discussing role of dietary fats especially saturated fats for elevating blood cholesterol	62(15.8)	172(43.9)	158(40.3)
4	Advising diet based on food pyramid serving size	305(77.8)	53(13.5)	34(8.7)
5	Role of omega3 fatty acids in heart diseases	161(41.1)	73(18.6)	158(40.3)
6	Providing nutrition education on calories obtained from food groups that needed by patients	302(77.1)	53(13.5)	37(9.4)
7	Starting nutritional therapy for severely malnourished patient	179(45.7)	110(28)	103(26.3)
	All items	139(35.5)	206(52.5)	47(12)

BMI=Body mass index, WHR=waist-to-hip ratio

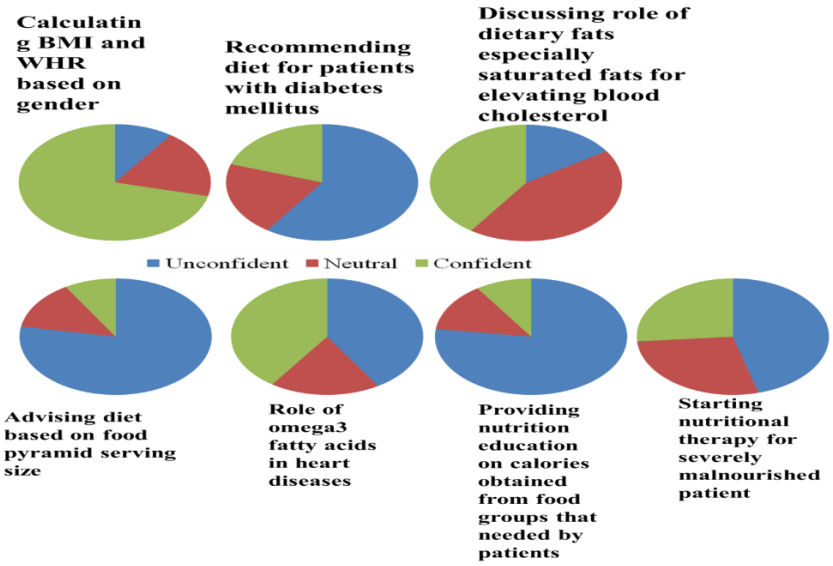

Figure 2. Newly Graduated Self Confidence in Providing Nutritional Care

The relationship between doctors knowledge levels and their attitudes ensuring self-efficacy regarding nutritional care offering. Regarding the correlation between knowledge and attitude toward nutritional practice, the outcome revealed a potential contrast between those with poor (score less than 50%) versus good knowledge (score 50%

or higher) with significant difference (p=0.0001). Poor knowledge group mostly disagreed with providing nutritional care or remained neutral, with only 12 shown agreement. Good knowledge shown optimistic positive attitudes, with 194 participants agreed to offer nutritional care, perhaps this mean that better knowledge proportionally correlates with positive attitudes regarding nutritional care provision. Similarly, poor knowledge participants lacked confidence (96 unconfident and 10 confidence) in offering nutritional care. Meanwhile, good knowledge participants were confident (70 unconfident and 138 confident) in offering nutritional care with statistically significant differences at (p = 0.0001). Collectively, 392 participants (120 with poor knowledge and 272 with good knowledge) confirmed that positive attitude toward nutrition status care linked to the participants knowledge.

Table 4. Relation between Knowledge, Attitude and Self-efficacy towards Providing Nutritional Care

Items	**Knowledge**		
	Poor < 50%	**Good ≥ 50%**	**P value***
Attitude			
Disagree	29	27	0.0001
Neither agree nor disagree	79	51	
Agree	12	194	
Self – efficacy			
Un confident	96	70	0.0001
Neither confident nor unconfident	14	138	
Confident	10	64	
Total	120	272	

**Using Chi-square test*

Regarding satisfaction with nutrition knowledge and practice gained during college years of education, Majority were satisfied with knowledge gained by lectures (77.8%) but less satisfied with practice gained (62.5%) (Figure 3).

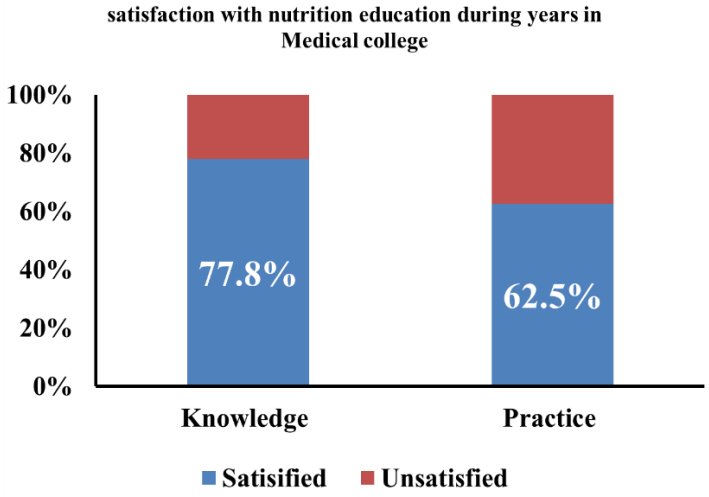

Figure 3. Satisfaction with Nutrition Education during Years in Medical College

Discussion

The aim of the current study was to assess knowledge, attitude and perceived confidence in providing nutritional care among newly graduated medical doctors from medical Colleges in Mosul City. The present study revealed that the average nutritional knowledge score were 62.3%. This were in accordance to that reported by study conducted among physicians in 4 Gulf countries (Bahrain, Saudia Arbia, United Arab Emirate and Kuwait) in which average nutrition related knowledge score was 62%[16], and another study done in Ghana showed average score of general practitioners were 64% [13], but higher than that reported in Jeddah as the average knowledge score of 52%[17]. This average level of nutrition was good level as stated by a systematic narrative review carried out by Zeldman and Andrade, in which that average of nutrition knowledge scores among physician and nurses were commonly ranged between poor (33%) to very good (72%) [18].

Despite this good knowledge but a gap were found in assessing knowledge of each topic, the lowest mean score were for nutrition and cardiovascular diseases (49.4%) topic compared to those score for other topics. This findings were in accordance to that displayed by previous studies in Saudi Arabia [19] and United State [12]. This is probably due to after graduation medical doctors may fail to remember and integrate basics of nutrition with clinical practice as its taught during pre-clinical years. In addition Flynn M. etal study stated that most of physician had inadequate understanding on carbohydrate, fat, triglycerides and high density lipoprotein metabolism [20].

All participants in this study exhibited positive attitude (52.8% agree) towards incorporating nutrition care and counselling in daily clinical practice, which is similar to that reported by in Saudi Arabia (51%) [19]. This results were higher than demonstrated in Croatia (36%) [21] but lower than displayed in Switzerland (70%) [22]. However, it was stated that positive attitude of 50% and more are sufficient to ensure acceptable nutritional care [22]. In addition, perception of importance of nutritional care declined after graduation as shown by Vetter et al. and Vrkatić et al. studies and many doctors and educators regarded positive perception of nutritional care as an important part of clinical care enhanced better health for patients [12, 23].

Unfortunately, more than half (52.5%) of the newly graduated doctors displayed that they were neither confident nor unconfident in providing nutrition care for patient with only 12% of them were confident and had good self-efficacy to provide nutritional care for patients. This also reported by other studies done in different localities [15, 24, 25]. This urge the need to incorporated the nutrition care training in clinical years in medical schools teaching in addition to implement training courses after graduation, as suggested by Vetter et al study in which resident physicians knowledge and counselling skills enhanced by post-graduation training [12].

Those who have good knowledge were significantly ($p=0.0001$) have more positive attitude and more confident than those with poor knowledge. This in agreement with that displayed by Wynn et al. study in Canada that carried out among primary care doctors [26] and Mogree et al review, as stated improving doctors efficacy in providing care need empowering their empathy and attitude not only increasing knowledge [27].

Most of the participants were satisfied with nutrition education that received during their teaching years in medical college but thought that clinical training is somewhat need to be continued through training courses included hands on practice sessions on real patients. This were also reported by other studies [28-30] in which most of participant were satisfied

with nutritional education in their medical schools but need future training courses.

It's worth noting that this study is a cross-sectional study makes it difficult to assess cause and effect. In addition collection of data depends on a self- rating of efficacy in providing care which may be affected by social differences and ideas. Although its widely agreed that using self- reported measurement of nutrition efficacy could be used as indirect measure of real competencies [31]. But the present study provides baseline information that could help in improving medical doctors competences and in evaluating healthy nutrition as an critical part in the prevention and even management of chronic non communicable diseases. The use of validated questionnaire in which content validity were examined by professions' in this filed, random selection of the sample and high response rate (93%) would increases confidence in our results.

Conclusion

Newly graduated medical doctors had good knowledge and positive attitudes regarding nutrition care but had low levels of perceived efficacy in proving nutrition care, this suggest the need for implementing strategies that help to enhance medical doctors confidence level in providing nutrition care during their daily practices.

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Conflicts of Interest

The author declare no conflicts of interest.

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