



Nutrition Knowledge, Attitude and Practice of Nurses and Physicians of Palestinian Hospitals in the Gaza Strip

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Abstract

The main objective of this study is to explore the nutritional knowledge, attitude and practice (KAP) of nurses and physicians who are working at major Palestinian hospitals in Gaza Strip. This is a cross-sectional study where 96 nurses and 48 physicians were recruited. The study used a self-administered questionnaire that includes socio-demographic characteristics, knowledge of nutritional science, attitudes towards the use of nutrition care in clinical settings, and nutrition practicing and counseling. The average age of all the respondents was 32 years, ranging from 22 - 54 years. About 14.6% of all participants attended more than 4 weeks of training in nutrition; however, the majority of this training is intended to deal with healthy subjects. The mean score of physicians' nutrition knowledge was 10.91, which was significantly higher than the nurses' nutrition knowledge score of 7.44. No statistical differences observed between nurses and physicians regarding attitude scale and practice. Overall, the obtained percentages of attitude among nurses were 54.2% positive, 22.9% neutral, and 22.9% negative. The obtained percentages of attitudes among physicians were 47.9% positive, 16.7% neutral, and 35.4% negative. Finally, the percentages of good nutrition practices via assessment and counseling were 53.1% for nurses and 52.1% for physicians. It was concluded that nurses and physicians were unable to provide effective nutrition intervention in health care settings and needed to improve their nutritional knowledge, attitudes and practices.



Article History

Received: 02 January 2021

Accepted: 12 July 2021


Keywords

Attitude;
Gaza;
Nurse;
Nutritional Knowledge;
Practice;
Physician.

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Doi: <http://dx.doi.org/10.12944/CRNFSJ.9.2.30>

Introduction

Nutrition is a key element of health promotion and contributes to the management and prevention of many diseases specifically, hypertension and diabetes.¹ Through different stages of the life cycle, such as preconception, pregnancy, lactation, childhood, adolescence, menopause and old age humans need to give special attention to nutrition.² In developing countries, nutritional involvement in the care process is often ignored, despite a vast deterioration in the multiple burden of, undernutrition, overnutrition, Non Communicable Diseases (NCDs) and related comorbidities.³ Nutrition knowledge is crucial for encouraging healthy eating habits.⁴ However, knowledge of nutrition alone may not be sufficient to improve dietary behaviors; there is also a need to promote a positive attitude towards healthy eating habits.⁵ With the current shift in eating patterns towards the western diet and an increase in televised food ads, there is an even greater need to empower people with accurate knowledge and attitudes for choosing appropriate food preferences.⁶

Nutrition care is a significant element in the health care system, which has a vital role in the prevention and management of NCDs that are responsible for higher rates of morbidity and mortality worldwide.^{7,8} Nutritional care refers to any practice or procedure carried out by health care professionals to enhance the actions and subsequent health outcomes of an individual in relation to food.⁹ In all cases, nurses and doctors must be willing to provide medical advice, and certain patients are eager to hear a doctor's advice regarding whether their dietary intake is compatible with their current health condition.¹⁰ However, reports have shown a long history of physicians lacking expertise in diet and nutritional science, with comparatively less nutritional knowledge in their medical education leading to high morbidity and mortality among their patients.¹¹

Clinicians are more capable within the health-care system of providing their patients with medical care.¹² Nutritional care practice, when offered in health-care settings, is an effective and essential form of preventive health care.¹³ Other health workers, such as nurses, are especially valuable providers of nutritional services in health care settings because they can inspire even healthy individuals to adopt healthier lifestyles.^{8,9}

Knowledge of nutrition is one of the factors that shape the nutritional behaviors of individuals, as well as communities.¹⁴ Nurses' and physicians' nutrition-related activities in health care settings are influenced by their knowledge of nutrition.¹⁰ Although patients expect to receive nutritional counseling from medical health workers, their expectations are not always met.¹⁵ Several factors have been implicated in that, and some of these barriers include lack of time, lack of nutritional information, lack of payment and lack of patient compliance to diet.¹⁶ Identifying weaknesses in nutrition knowledge among nurses and physicians may provide guidance for improving their understanding of nutrition in the future. Currently, the degree of nutrition knowledge among Palestinian physicians is unknown. The main objective of this study is to explore the nutrition knowledge, attitudes and practices (KAP) of nurses and physicians who are working at the Palestinian hospitals in the Gaza Strip.

Materials and Methods

Study Population and Survey

A cross-sectional study was conducted on 144 Palestinians nurses and physicians working in hospitals that are affiliated to the Palestinian MoH in the Gaza Strip. This study was conducted from 10 February to 25 May 2020, and the Ministry of Health and Helsinki Committee approved it. Three major hospitals in Gaza Strip were selected: Al-Shifa Medical Complex in Gaza City, Al-Aqsa Hospital in Deir Al Balah City, and Nasser Medical Complex in Khan Younis City. The survey included nurses and physicians from different departments: pediatric, obstetrics and gynecology, reproductive and child health clinic, medical ward, and the outpatient departments. Physicians' categories included medical specialists, medical officers, assistant medical officers, and clinical officers, while nursing' categories included registered and enrolled nurses. None of these hospitals offer nutritional services.

The Development and Piloting of the Questionnaire

This study was carried out via a self-administered questionnaire, which consisted of 55 questions divided into five parts. The first section of the questionnaire (5 questions) inquired about socio-demographic characteristics of the study population namely; gender, age, education, work department

and years of experience. The second section of the questionnaire (6 questions) discussed further education and training in nutritional science for the nurses and physicians. The third section of the questionnaire (21 questions) discussed knowledge of the field of nutritional science; nurses and physicians were asked nutrition questions in different selected topics. A technical expert committee checked this technical part. The face validity of the study was verified and their comments were considered while preparing the final version of the questionnaire. The fourth section of the questionnaire (18 questions) concerned the attitudes of nurses and physicians in clinical practice towards the use of nutrition care as well as therapies and disease prevention. The attitude section of the questionnaire has positive and negative nutritional statements with a three-scale degree of agreement. Finally, the fifth section of the questionnaire (5 questions) is related to the nutrition counseling practice of nurses and physicians with patients on a regular basis. The participants were asked how they applied nutrition-related techniques in patient's care, barriers to practice, and self-modification of diet. The theme of the questionnaire focuses on the fundamentals of human nutrition, major food groups, sources of nutrients, diet-disease relationship, and nutritional requirement through life cycle.

Some items related to the knowledge, attitude and practice (KAP) questionnaires are taken from previous questionnaires,¹⁵⁻¹⁷ while a panel of nutrition experts produced others. This serves to increase the content validity of the questionnaire.¹⁷ Using the pool of 90 items, the panel conducted two reviews to select the best in terms of clarity, accuracy and interpretability of the questions and to modify the culturally sensitive food items to culturally accepted and more common ones. The questionnaire was piloted in a convenience sample of the 5 Physicians and 10 nurses. After completing the questionnaire, they were asked about the content of questionnaires and their feedbacks were recorded. A review of the completed surveys and subjects' comments by another team of experts led to minor changes to the tool, to improve comprehension and ability to respond. Cronbach's alpha was used to assess the reliability of the revised tool with respect to (a) how well the individual items of the question fit together and (b) whether they assess the same construct.

It was 0.81 and 0.83 for nurses and physicians, respectively.

Data Collection

The questionnaires were distributed and collected with the assistance of the medical secretaries. Each participant received an enclosed envelope containing a consent form, questionnaire and cover letter to explain the purpose of the study and the importance of participation. An introductory and scoping meeting with the chief of medical staff in each of the targeted hospitals was organized before the distribution of the questionnaires to explain the purpose and the importance of the study.

Ethical Approval and Consent to Participate

All measures performed in this project were according to the ethical standards of the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. The Helsinki Committee, Al Azhar University- Gaza and Ministry of Health, Gaza Strip, Palestine approved this study. Written consent was obtained from all individual participants included in the study.

Data Processing and Statistical Analysis

Quantitative data from the questionnaire were coded and analyzed using the Statistical Package for Social Sciences (SPSS) version 24.0 software (IBM Corp., Armonk, NY USA). The descriptive statistics was used to summarize the data into frequencies and percentages, and continuous variables were presented as mean \pm standard deviation (SD). The attitude survey consisted of negative and positive nutrition statements with a five-scale degree of agreement (agree, agree, undecided, disagree and strongly disagree). The Coding of attitude has used the three-scale degree of agreement (positive, neutral, and negative), and then all questions have been merged to obtain one variable with three points scaling. Coding of practice has used dichotomous categories (good and poor), and then all questions have been merged to obtain one variable with two categories. Independent t test compared the score of nutrition knowledge between nurses and physicians, and chi-square test (χ^2) compared the categorical variables of attitude and practice for nutrition with nurses and physicians. $P \leq 0.05$ was considered statistically significant and the level of confidence was 95% when the power was equal to 80%.

Table 1: Distribution of participants based on sociodemographic factors and nutrition training

N = 144	Nurses	Physicians	Total
	n (%)	n (%)	n (%)
A: Sociodemographic factors			
Number	96 (66.7)	48 (33.3)	144 (100%)
Hospitals			
Al-Shifa Medical Complex	32 (33.3)	15 (31.3)	47 (32.6)
Al-Aqsa Hospital	29 (30.2)	15 (31.3)	44 (30.5)
Nasser Medical Complex	35 (36.5)	18 (37.4)	53 (36.9)
Gender			
Male	66 (68.8)	35 (72.9)	101(70.1)
Female	30 (31.2)	13 (27.1)	43 (29.9)
Age (years)			
≤ 30	63 (65.6)	13 (27.1)	76 (52.8)
31-40	30 (31.3)	25 (52.1)	55 (38.2)
≥ 41	3 (3.1)	10 (20.8)	13 (9.0)
Length of experience (years)			
≤ 10	77 (80.2)	35 (72.9)	112 (77.8)
> 10	19 (19.8)	13 (27.1)	32 (22.2)
B: Nutrition training			
Nutrition training in college	79 (82.3)	36 (75.0)	115 (79.8)
Duration of nutrition training			
None	17 (17.7)	12 (25.0)	29 (20.1)
Less than one week	37 (38.5)	7 (14.6)	44 (30.6)
One to two weeks	22 (22.9)	18 (37.5)	40 (27.8)
Two to four weeks	7 (7.3)	3 (6.3)	10 (6.9)
More than four weeks	13 (13.6)	8 (16.6)	21 (14.6)
Nutrition training prepared to deal healthy individuals	60 (62.5)	14 (29.2)	74 (51.3)
Feel necessary to have pre-service nutrition training	91 (94.8)	46 (95.8)	137 (95.1)
In-service/on-job nutrition training	15 (15.6)	8 (16.6)	23 (15.9)
Preferred in-service/on-job nutrition courses	32 (33.3)	30 (62.5)	62 (43.0)

Results

A total of 168 health and medical professions were randomly selected for the self-administered questionnaire. With an 85.7% response rate, 144 participants (96 nurses and 48 physicians) from three major hospitals in three regions of the Gaza Strip filled out the pre-tested self-administered questionnaire and returned it back to the study team. The objective of the current study is to evaluate the nutrition knowledge, attitude and practice of nurses and physicians. As detailed in Part A of Table 1, the distribution of participants indicated that 96 (66.7%) were nurses and 48 (33.3%) were physicians. Male participants account for 101 (70.1%); 66 were nurses and 35 were physicians, and 43 (29.9%) were

female; 30 were nurses and 13 were physicians. The mean age of all participants was 32 years old, ranging from 22 to 54 years. Among all the participants, 76 (52.8%) were aged less than 30 years; the majority of them were nurses with less than 10 years of professional experience. The distribution of nurses and physician based on the hospitals indicated that 53 (36.9%) participants were from Nasser Medical Complex, 47 (32.6%) were from Al-Shifa Medical Complex, and 44 (30.5%) were from Al-Aqsa hospital. Furthermore, Part B of Table 1 shows the involvement of nutrition training for both nurses and physicians. Most participants indicated they had received nutrition training during their college studies, while a few of them (around

14.6%) had attended the more than 4 weeks of training and the difference between proportions was statistically significant ($p = 0.048$).

As detailed, less than two weeks of nutrition training and very short trainings were the major percentages for both nurses and physicians. 60 (62.2%) nurses and 14 (29.2%) physicians received nutrition

training for healthy individuals, which means the nutrition training did not include specific training and knowledge about diseased populations. Majority of the study population (95.1%) feel necessary to have pre-service nutrition training. Though, 62 (43.0%) preferred the training to be in-service/on-job term, few participants 23 (15.9%) have received it.

Table 2: Distribution of nutrition knowledge

No.	N = 144 (96 Nurses and 48 Physicians)	Correct answer	Nurses	Physicians	Total
			n (%)	n (%)	n (%)
1	What is period of children's exclusive breast feeding?	6 months	74 (77.1)	44 (91.7)	118 (81.9)
2	An important mineral for menopausal women.	Calcium	49 (51.0)	34 (70.8)	83 (57.6)
3	Who are at risk of malnutrition from the community groups?	Pregnant & under 5 years children	37 (38.5)	27 (56.3)	64 (44.4)
4	What is the adequate intake of calcium for adult aged 51-70 years?	1200 milligrams per day	62 (64.6)	25 (52.1)	87 (60.4)
5	What is the protective nutrient against hypertension?	Potassium	72 (75.0)	41 (45.4)	113 (78.5)
6	Which is the most concentrated source of vitamin B 12?	Meat	23 (23.9)	26 (54.2)	49 (34.0)
7	Which are considered as antioxidant nutrients?	β -carotene & Vitamin E	72 (75.0)	36 (75.0)	84 (58.3)
8	Excess of specific nutrient may increase body loss of calcium.	Protein	19 (19.8)	12 (25.0)	31 (21.5)
9	The percentage of total energy that should come from fats per day.	25%	55 (57.3)	31 (64.6)	86 (59.7)
10	What are the types of food might have a preventive effect on various types of cancer?	Fruit & vegetable	80 (83.3)	48 (100)	128 (88.9)
11	How much kilocalories can be obtained from one gram of fat?	9 kilocalories	44 (45.8)	40 (83.8)	84 (58.3)
12	A common nutrient deficiency in alcoholic persons.	Vitamin B1	36 (37.5)	23 (47.9)	59 (41.0)
13	Nutrient strongly associated with the Folic Acid prevention of neural tube defects.		49 (51.0)	37 (77.1)	86 (59.7)
14	Nutrition status of an adult whose body mass index is between 25.0-29.9 kg/m ² .	Overweight	36 (37.5)	34 (70.8)	70 (48.6)
15	Long term treatment of tuberculosis by isoniazid may cause deficiency of:	Niacin & Pyridoxine	19 (19.8)	26 (54.2)	45 (41.3)
16	Eating large amount of raw egg white may develop:	Biotin deficiency	44 (45.8)	28 (58.3)	72 (50.0)
17	A micronutrient is not involved in the muscle contraction.	Vitamin C	46 (47.9)	40 (83.3)	86 (59.7)
18	To have maximum benefit of dietary calcium, an individual should eat:	Fish & Chicken	48 (50.0)	25 (52.1)	73 (50.7)

19	In the average diet, which minerals are at great risk of deficiency?	Calcium, iodine & iron	42 (43.8)	12 (25.0)	54 (37.5)
20	An ideal weight gain for the normal weight pregnant woman.	11–14 kg	52 (54.2)	37 (77.1)	89 (61.8)
21	In large doses, which vitamins may accumulate in the body to dangerous levels?	Vitamin A & vitamin D	38 (39.6)	29 (60.4)	67 (46.5)

The results of the knowledge component were shown in Table 2 amongst 21 nutrition questions, nurses had the best percentages in 3 questions, physicians had best the percentages in 17 questions, and finally one question only had equal percentages.

The question entitled “No: 10; what types of food might have a preventive effect on various types of cancer?” was the best-answered question for both nurses and physicians, where the percentages of true answers were 83.3% and 100%, respectively.

Table 3: Classification of nutritional knowledge

Knowledge level classification	Nurse N=96	Clinicians N= 48	x2(df)	p-Value
Poor ^a	28(29.2%)	2(4.2%)	29.61(2)	<0.001
Moderate ^b	52(54.2%)	18(37.5%)		
Excellent ^c	16 (16.7%)	28(58.3%)		

a knowledge score is less than <9 (25th Percentile)

b Knowledge score is 9 - <13 (75th Percentile)

c Knowledge score is ≥ 13

Table 3 presents a comparison in nutritional education levels between nurse and physicians showing that the 29.2% and 4.2% of the nurses and physicians are having poor nutritional knowledge, respectively. More than half of the physicians

enjoy good nutritional knowledge in comparison with nurses where 16.7% of them are having good nutritional knowledge. This difference in proportions, regarding the nutritional education levels between the two categories was highly significant (p= <0.001).

Table 4: Description of attitude towards nutrition in the medical field

No.	N = 144 (96 Nurses and 48 Physicians)	Participants	Positive	Neutral	Negative
			n (%)	n (%)	n (%)
1		Nurses	90 (93.7)	6 (6.3)	---
		Physicians	48 (100.0)	---	---
2		Nurses	80 (83.3)	14 (14.6)	2 (2.1)
		Physicians	46 (95.8)	1 (2.1)	1 (2.1)
3		Nurses	61 (63.5)	33 (34.4)	2 (2.1)
		Physicians	41 (85.4)	3 (6.3)	4 (8.3)
4		Nurses	65 (67.7)	26 (27.1)	5 (5.2)
		Physicians	32 (66.7)	9 (18.8)	7 (14.6)
5		Nurses	65 (67.7)	20 (20.8)	11 (11.5)
		Physicians	38 (79.2)	9 (18.8)	1 (2.1)

6	Nurses/physicians should spend more time exploring dietary/eating habits during patient care	Nurses	52 (54.2)	34 (35.4)	10 (10.4)
		Physicians	21 (43.8)	15 (31.3)	12 (25.0)
7	Most nurses/ physicians are very knowledgeable about nutrition \diamond	Nurses	38 (39.6)	33 (34.4)	25 (26.0)
		Physicians	30 (62.5)	17 (35.4)	1 (2.1)
8	Nurses/physicians should involve themselves in nutrition counseling	Nurses	68 (70.8)	21 (21.9)	7 (7.3)
		Physicians	20 (41.7)	11 (22.9)	17 (35.4)
9	Nurses/physicians should involve themselves in nutrition/dietary counseling	Nurses	61 (63.5)	26 (27.1)	9 (9.4)
		Physicians	38 (79.2)	6 (12.5)	4 (8.3)
10	Obesity is a health problem in Palestine	Nurses	54 (56.3)	27 (28.1)	15 (15.6)
		Physicians	31 (64.6)	10 (20.8)	7 (14.6)
11	The pleasures of eating are more important than the potential health benefits of dieting	Nurses	51 (53.1)	25 (26.1)	20 (20.8)
		Physicians	12 (25.0)	11 (22.9)	25 (52.1)
12	Diet has no effect on prolonging life	Nurses	31 (32.3)	21 (21.9)	44 (45.8)
		Physicians	8 (16.7)	14 (29.2)	26 (54.2)
13	Nutrition/dietary counseling should be given to only those who are obese	Nurses	42 (43.8)	12 (12.4)	42 (43.8)
		Physicians	8 (16.7)	6 (12.5)	34 (70.8)
14	Dietary counseling is a waste of time because people don't change their eating habits anyway	Nurses	35 (36.5)	25 (26.0)	36 (37.5)
		Physicians	15 (31.3)	7 (14.6)	26 (54.1)
15	Nutrition advice is not the responsibility of the nurses/physicians $\diamond\diamond$	Nurses	28 (29.2)	20 (20.8)	48 (50.0)
		Physicians	10 (20.8)	3 (6.3)	35 (72.9)
16	Nutrition advice is not important to people with infectious diseases	Nurses	39 (40.6)	18 (18.8)	39 (40.6)
		Physicians	7 (14.6)	9 (18.8)	32 (66.6)
17	Adolescents are not at risk of malnutrition	Nurses	28 (29.2)	22 (22.9)	46 (47.9)
		Physicians	5 (10.4)	6 (12.5)	37 (77.1)
18	There is no need of early diagnosis and treatment of obesity	Nurses	39 (40.6)	11 (11.5)	46 (47.9)
		Physicians	9 (18.8)	9 (18.8)	30 (62.4)

\diamond The question is read as "most physicians are knowledgeable about nutrition" for physicians' participants, and "most nurses are knowledgeable about nutrition" for nursing participants .

$\diamond\diamond$ The question is read as "nutrition advice is not the responsibility of the physicians" for physicians' participants, and "nutrition advice is not the responsibility of the nurse for nursing participants".

Table 4 shows the description of nurses' and physicians' attitudes toward the significance of nutrition in the medical fields and in the treatment and prevention of different diseases. Attitude section involved 18 questions, same for nurses and physicians. Descriptively, physicians were observed to have more positive attitudes toward nutrition in 6 items, one item had similarity in the positive attitude, while nurses were observed to have more positive attitudes toward nutrition in 11 items.

Table 5 shows the distribution of nutrition practice and counseling actions for both nurses and physicians. Similarity was found in providing nutrition advice and receiving question between both nurses and physicians. Moreover, due to the existence of health problems, the shift in self-dietary pattern was

observed more among nurses. Finally, using the assessment tool for nutrition purposes was observed to be limited for both nurses and physicians during medical practice.

The differences of KAP variables between nurses and physician were presented in Table 6. The mean \pm SD of physicians' nutrition knowledge score was 10.91 ± 2.52 , which was significantly higher than nurses' nutrition knowledge score 7.44 ± 2.40 ($t = 8.067$, $P < 0.001$). However, both of them were lower than 50% of full score. Finally, regarding attitude and practice, there were no significant differences obtained between nurses and physicians. Similarity was observed in both positive attitude and good practicing of nutrition.

Table 5: Distribution of nutrition practices

N = 144 (96 Nurses and 48 Physicians)	Nurses	Physicians	Total
	n (%)	n (%)	n (%)
1. The participants provide nutrition advices to patients/clients			
Always	22 (22.9)	4 (8.3)	26 (18.1)
Most of the time	29 (30.3)	20 (41.7)	49 (34.0)
Sometimes	44 (45.8)	22 (45.8)	66 (45.8)
Never	1 (1.0)	2 (4.2)	3 (2.1)
2. Patients seek nutrition advice			
Never	20 (20.9)	5 (10.4)	25 (17.3)
Less than 25% of patients	36 (37.5)	23 (47.9)	59 (41.0)
25-50% of patients	25 (26.0)	15 (31.3)	40 (27.8)
50-75% of patients	14 (14.6)	3 (6.2)	17 (11.8)
More than 75% of patients	1 (1.0)	2 (4.2)	3 (2.1)
3. The participants changed his/her own dietary pattern			
Yes	57 (59.4)	23 (47.9)	80 (55.6)
No	39 (40.6)	25 (52.1)	64 (44.4)
4. Reason for changing dietary pattern			
Clinicians advice	31 (32.3)	28 (58.4)	59 (41.0)
Health problem	49 (51.0)	16 (33.3)	65 (45.1)
No change of dietary pattern	16 (16.7)	4 (8.3)	20 (13.9)
5. Using assessment tools in the clinic/place of work			
Weighing scale	39 (40.6)	25 (52.1)	64 (44.5)
Height meter/Stadiometer	7 (7.3)	5 (10.4)	12 (8.3)
Tape measure	9 (9.4)	4 (8.3)	13 (9.0)
No assessment tool	39 (40.6)	11 (22.9)	50 (34.7)
Others	2 (2.1)	3 (6.3)	5 (3.5)

Table 6: Difference of KAP variables between nurses and physicians

No.	KAP Variables	Nurses	Physicians	Test Value	P Value	
1.	Knowledge	7.44 ± 2.40	10.91 ± 2.52	t = 8.067	<0.001*	
2.	Attitude	Positive	52 (54.2)	23 (47.9)	$\chi^2 = 2.357$	0.308
		Neutral	22 (22.9)	8 (16.7)		
		Negative	22 (22.9)	17 (35.4)		
3.	Practice	Good	51 (53.1)	25 (52.1)	$\chi^2 = 0.014$	0.906
		Poor	45 (46.9)	23 (47.9)		

Data are presented as mean ± SD or n (%).

* Significant level at $P \leq 0.05$.

Discussion

In the medical fields, knowledge of nutrition is significant. However, there has been general concern about the state of nutrition knowledge, attitude and practice of nurses and physicians in many areas.¹⁸

Nurses and physicians have the power to lessening morbidity and mortality if they are given the chance deliver effective, timely nutritional counseling and advice. Nutritional knowledge improves with new scientific evidence. They must be aware of reliable

sources to contribute education and information appropriate for their practice and patient care.¹⁹ This study was intended to assess the knowledge of nutrition, attitudes toward the importance of nutrition in the treatment and prevention of different diseases and toward nutrition care and the application of nutrition care in their daily work with patients.

Knowledge of Nutrition

The average correct nutrition knowledge of both groups is considered insufficient, despite higher scores observed among physicians who could hardly get 50% of the answers correct in the knowledge section. They therefore had little and insufficient nutrition knowledge and nutritional counseling and education skills to use in their daily basis of medical work. The reasons for this are minimal nutritional topics in the graduate curricula and insufficient internship and residency preparation. In Gaza Strip, with a subject offering 2 credits hours per week and once for the whole plan, nutrition is a course of nursing and medicine that introduces the student to expertise in the administration of malnourished patients. It focuses on food classes, diets and needs according to lifecycle. Health Results of this study are consistent with previous studies, in Croatia; only 35.8% of the general practitioners (GPs) had an adequate level of nutrition knowledge.²⁰ In Bangladesh, similar results for physicians were observed; the average correct answers to nutrition knowledge were 55%¹⁴. Similarly, in Qatar, approximately 19% of the physicians described their knowledge of nutrition as very good, 60% as moderate and 21% as poor.²¹ In New Zealand, there is an evidence-practice disparity for the trust of GPs to provide nutrition treatment and their awareness of evidence-based nutritional recommendations to promote safe dietary habits for patients.⁷ Moreover, in Taiwan, the percentages of correct answers of medical students on general and clinical nutritional knowledge were 60% and 52%, respectively.²² Finally, among Kuwaiti physicians working in governmental hospitals, most (70%) of the physicians described their knowledge of nutrition as moderate, whereas the knowledge was highest in terms of topics covered in the media and the newspapers.²³ Al-Madani *et al.* (2004) clarified the potential explanation for poor nutrition knowledge; little attention was paid to nutrition subjects in the medical curriculum, where medical students had substantially lower nutrition knowledge compared to medical practitioners in Bahrain.²⁴

Attitude Toward Nutrition Care

The result of this study indicated that similar percentages of attitude categories were observed for both nurses and physicians. The obtained percentages among nurses revealed that 54.2% had positive attitude, 22.9% had neutral attitude, and 22.9% had negative attitude indicating that the attitude towards nutrition need to be enhanced not only in the Palestinian context but also in other parts of the globe. Similarly, the obtained percentages among physicians revealed that 47.9% had positive attitude, 16.7% had neutral attitude, and 35.4% had negative attitude. The determined percentage of nurses and physicians with a satisfactory number of positive attitudes was much lower than the percentage of medical staffs determined in similar studies conducted in New Zealand, Taiwan, the United States, and the United Kingdom, where the percentage of positive attitudes towards nutritional statements was above 90%, above 95%, 82%, and 99%, respectively.²⁵⁻²⁸ In addition, Hseiki *et al.* (2017) concluded that the surveyed physicians in Lebanon had a positive attitude towards nutritional therapy and were appropriate in their self-reported frequency of nutritional practices; however, there was still room for improvement in nutritional counseling in general.¹⁵ On the other hand, the present study showed that there was no statistically significant difference between nurses and physicians in the proportion of respondents with and without a satisfactory number of positive attitudes towards the importance of nutrition in the treatment and prevention of various diseases and towards nutritional care, regardless of specialty, department of work, duration of training and age. However, age, specialty, training and level of education have great impacts on the positive attitude.⁹

Practicing of Nutrition

Nutrition-related diseases significantly reduce the quality of life and can contribute to morbidity and premature death, though they are preventable.²⁹ Low-income countries tend to prioritize doctors and nurses within their meager health workforce expenditures, hence nurses and physicians in these contexts are best situated in the healthcare system to provide their patients with appropriate therapy that can aid in preventing and treatment of diseases.³⁰ At the primary and secondary levels of health care, they may offer counseling by assessing the nutritional plan of the patient, related to excess

weight, obesity, and a number of chronic non-communicable diseases. Such guidance offers an opportunity to further influence specific preventive activities.³¹ In this study, practicing of nutrition assessment, counseling and therapy appears to work best in a hospital-based environment; 53.1% of nurses and 52.1% of physicians indicated themselves as good in nutrition practicing. However, the nutrition knowledge for both groups is insufficient to provide nutrition care. Amongst the respondents, some changed his/her own dietary pattern due to reasons associated with health problems. Based on the literature, the most significant motivating factors for nutrition practices and counseling in daily work with patients are identified as personal interest regarding nutrition and the effect it has on health, or patients may ask for nutritional advice.¹² However, the most substantial barriers to nutrition practices and counseling are lack of time, lack of education, patients' noncompliance, and lack of familiarity with nutrition counseling.^{12,32}

Limitations

The small sample size is considered a limitation of the study. Despite this limitation, we find it safe to conclude that physicians and nurses need to improve their knowledge and attitudes towards nutrition practice in health settings.

Conclusion

In health care systems, nurses and physicians have the potential to decrease morbidity and mortality if they provide effective nutrition counseling and advice. Nutrition knowledge changes with new scientific evidence. So, they must be aware of reliable sources of education and information appropriate for their practice and patient care; instead, they are concentrating heavily on the treatment of medical conditions rather than health promotion or nutrition. Nutrition care should be an integral part of daily work with patients. The collected data in this study showed low nutrition knowledge accompanied by a modest

percentage of positive attitudes toward nutrition and nutrition care, and little practicing of nutrition assessment and counseling in clinical settings. A clearer understanding of the determinants of this disparity is needed to facilitate effective nutrition care by both nurses and physicians. The key reasons for poor knowledge of nutrition were the low interest of nutrition subjects in education programs and insufficient internships after graduation and in paid work. However, this study did not identify which part of the medical curriculum was the most suitable for nutrition education. In order to increase the proportion of medical staff with positive attitudes, and also to empower their nutrition care practices, it is necessary to design and implement health policy measures that are predominantly oriented toward prevention. The absence of a nutritionist in the health care systems of the Gaza Strip will exacerbate the problem, and its repercussions on treatment results will emerge. Therefore, recruiting nutritionists in different medical levels can help solve the problem and get rid of the workload in nutrition for non-specialists.

Acknowledgment

We thank the physicians and nurses who gave us their time, the Palestinian Ministry of Health for guaranteed access to Hospitals. Our gratitude is extended to the academic staff of Al Azhar University - Gaza for their continued support and cooperation. Our sincere thanks to ECNAD team – Erasmus+ – for their guidance and assistance in accomplishing this work. Sincere thanks extended to Jennifer Kastner for her efforts in English language editing.

Funding

This is to indicate that this study has not received any fund from any party.

Conflicts of Interest

The authors declare no conflict of interest.

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