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RESEARCH ARTICLE

EVALUATION OF NUTRITIONAL KNOWLEDGE OF FEMALES MEDICAL STUDENTS AND NON-MEDICAL STUDENTS AT UNIVERSITY OF SCIENCE AND TECHNOLOGY IN SANA'A CITY, YEMEN, 2018

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Abstract

Background: Nutritional knowledge plays a very important role in nutritional status. Evaluatenutritional knowledge among medical and non-medical female students at university of science and technology in Sana'a city, was the objective of present study.

Methods: Cross-sectional study, was performed using a systematic random sampling technique. Data was collected by face-to-face interviews using pre-designed, semi-structured questionnaires on a period of two month from January to February 2019. Questionnaires was developed in two sections. The data was cleaned and coded then analyzed using SPSS version 21.

Result: One hundred and twenty students were enrolled in this study. All of them were females. Their ages ranged between 18 years and 30 years. The most frequent age group (56.7%) was located between 21-23 years.Majority of students 100(83.3%) had good or excellent nutritional knowledge. Most of them 55(45.8%) were in clinical nutrition and dietetics department. In conclusion, students in clinical nutrition and dietetics department had better nutritional knowledge than students in English department. The difference was significant as indicated by Pearson Chi-Square (p value =.000),. There was also a significant correlation between nutritional knowledge with department, study year also attended nutritional courses(all p values < 0.05). Current findings suggest nutrition education curriculum is compulsory in every study field, and it is need for coordinated efforts to promote nutrition education programs among medical students in general and non-medical students in particularto improve nutritional knowledge of students.

Introduction:-

Nutritional knowledge plays a very important role in nutritional status[(1)] .The years between the ages of 18 and 24 are often difficult. This is a transition stage when one ceases to be a child and begins to be an adult. Nutritionally, these are important years because during this time young adults develop eating habits that are likely to be maintained for life. In addition to continued physical maturation, young adults also endure the stress of social maturation and independence [(2)].

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Proper nutrition is important in improving the community health in general and of the risk groups in particular[3] . College life is an important stage for individuals at this time their behaviors are conducive to change[4] . Many health and health related problems may be encountered and are slightly prevalent among medical students[5].

Also, medical students have been shown to exhibit early risk factors for chronic diseases[6] .All of these direct determinants were fundamentally influenced by individual nutritional knowledge. Nutritional knowledge is one of the basic causes of malnutrition[7] .In this regard, the medical practitioner is regarded as the epitome of correct food habits and lifestyle. There is a general perception amongst the common masses that the students of health sciences have a greater knowledge about the correct dietary habits and healthy lifestyle as compared with nonmedical students[8] .

However, studies have shown that medical and paramedical students especially who stay in hostels away from their home are susceptible to irregular dietary habits, lack of exercise, and addiction[9] . The college student population is a unique group that requires the specific attention of the dietetics professional[10]. Students in 'emerging adulthood' (age classification of 18-25 years old) have increasing independence and autonomy; this is where lasting health behavior patterns are developed [11] .

Times of transition, such as leaving home and increased decision-making power while still being financially dependent, define many in the 'emerging adulthood' group[12].In addition, this population may not have adequate self-regulatory skills, such as planning and self-monitoring, to maintain healthful behaviors in the college environment[13] . A college student's freshman year as they transition from adolescence to young adulthood[14]. Diet quality of college students also changes during this time period[15]. The diet of most college students is typically lacking in fruit, vegetable, and dairy consumption but is high in fat, sodium, and sugar. College students also have limited food variety, high snacking frequency, high incidence of meal skipping for weight loss, and a high consumption of fast foods.Poor consumption of fruit, vegetables, and dairy products, diets lacking in nutrient quality, and sporadic meal patterns increase nutritional risk and unwanted weight gain.The diets of college students tend to be high in fat, saturated fat, cholesterol, and sodium while they are low in fiber; vitamins A,C, and E; folate; iron; and calcium[16-18].

A study conducted among Irish adult reported those who had lower knowledge score on dietary recommendation and food selection subscale has underweight and overweight BMI, respectively [19].Nutritional knowledge may give motivation and boost for a healthier dietary pattern. Thus, it will have an impact on good nutritional status [20].

However, only a few people occupy with adequate nutritional knowledge. A study among college students in Michigan, United States reported that the respondents' mean of nutritional knowledge 66±13.4 SD [19]. Report published by the Michigan Department 2015 ,the Results indicate that female students have greater nutrition knowledge than male students (the mean nutrition score for women was 5 points higher than that of men (P = 0.01)[20].Indiana, January 17th, 2018 The students are knowledgeable [21].

Nutritional knowledge among university students is little known in Yemen, also still no previous study has been done in Sana'a regarding nutritional knowledge among university students. Moreover, nutritional education programs targeting university students need more focus as the important component to achieve health and nutritional status among university students.

Methods& Materials:-

The study was conducted among medical (student of clinical nutrition and dietetics department) and non-medical (English department) female students fromleveltwo up to level four at university of science and technology in Sana'a,because we believe compared to first year students they had fully immersed in university settings and adopted dietary lifestyles different from that of family homes. They were preferred to others because of reasons of availability during the period of the study and level 1 was exclude from study because the study start at the beginning of registration and the list of students not ready at that time of study, also,students who were not in good health or had a history of any chronic medical condition were not included in the study. Their ages ranged between 18 years and 30 years, because the years between the ages of 18 and 30 are often difficult. This is a transition stage when one ceases to be a child and begins to be an adult. Nutritionally, these are important years because during this time young adults develop eating habits that are likely to be maintained for life. In addition to continued physical maturation, young adults also endure the stress of social maturation and independence.

The study was conducted on a period of two month from January to February 2019.Cross-sectional study, description, was performed using a systematic random sampling technique.Data was collected by face-to-face interviews using pre-designed, semi-structured questionnaires,all the questionnaires was developed in two sections: section A: socio demographic questionnaire , section B: nutritional knowledge questionnaire. A systematic random sampling technique are included and an estimated size of the sample was 120 student enrolled in the study.The questionnaires were tested prior to the study among 5-10% of the total estimated sample size to assess, consistency, length, competency, clarity and the time required to carry out face to face interview smoothly.The Data was cleaned and coded then analyzed using SPSS version 21.Descriptive analysis was done by using table for frequency distributions, proportions and percentage. Suitable tests were chosen according to the aim and types of variables. Descriptive statistics were performed to describe nutritional knowledge, and socio-demographic variables. Data described by frequencies, percentages, means & SD; and presented in tables .Chi square test was used to test variable differences. Test considered to be significant if (p value) < 0.05. Further processing was performed which included coding of Knowledge coded into "Excellent" , "Good" and "Fair".The research protocol approval and ethical clearance was obtained from UST faculty medicine and health sciences and clinical nutrition department; also, permission was obtained from the directors of the target department. The data collectors informed the students that their participation in the study was be voluntary and they have full right to accept or refuse to participate in the study after details explanation of the purposes of the study. The responses of the student unnamed to keep the confidentiality.

Result:-

One hundred and twenty students were enrolled in this study. All of them were females in English department and clinical nutrition and dietetics department. Their ages ranged between 18 years and 30 years, with a mean of 24.3 ± 3 years. The most frequent age group 68(56.7%) was located between 21-23 years, followed by age group of 18-20 years 33(27.5%), followed by age group of 24-26 years 17(14.2%). Only 2 (1.7%) students were more than 27 years. Most of study sample students 99(82.5%) were unmarried. Only 19(15.8%) were married, and 2(1.7%) were divorced.Minority of students 4(3.3%) lived in university hostel, and majority of them 116(96.7%) lived out of university hostel.The sample was evenly distributed between clinical nutrition and dietetics department 60(50%) , and English department 60(50%).The sample was equally distributed between 2^{nd}, 3^{rd}, and 4^{th} level; 40(33.3%)each.Majority of students' fathers were either employees 58(48.3%) or worked in free business 50(41.7%). However, most of mothers 98(81.7%) were housewives, followed by employees 19(15.8%). Other jobs were less frequent.Table below illustrates that 45(37.5%) of students got their information from nutritionists,31(25.8%) got their information from parents, 19(15.8%) got their information from trainers, and about 24(20%) got their information from media (TV & magazines). Only 19(16%) of students attended nutritional courses. The remaining portion 101(84%) did not attend any course. Half of students were living with families that have 1 to 7 individuals, 49(41%) living with families that had 8 to 13 individuals, and 10(8%) living with families that had more than 13 individuals.

Table 1:- Summary of demographic characteristics of the sample.

Feature	Category	Count	Percent
Age	18-20 years	33	27.5%
	21-23 years	68	56.7%
	24-26 years	17	14.2%
	> 27 years	2	1.7%
Marital status	Single	99	82.5%
	Married	19	15.8%
	Divorced	2	1.7%
Residency	University hostel	4	3.3%
	Out of University hostel	116	96.7%
Department	Clinical Nutrition and Dietetics	60	50%
	English Department	60	50%

Study level	2nd level	40	33.3%
	3rd level	40	33.3%
	4th level	40	33.3%
Fathers' occupations	Employees	58	48.3%
	Free business	50	41.7%
	Professionals	5	4.2%
	Others	4	3.3%
	Workers	3	2.5%
	Employees	58	48.3%
Mothers' occupations	Housewives	98	81.7%
	Employees	19	15.8%
	Professionals	1	.8%
	Free business	1	.8%
	Others	1	.8%
Source of nutritional information	Nutritionist	45	37.5%
	Parents	31	25.8%
	TV	19	15.8%
	Trainer	19	15.8%
	Magazine	5	4.2%
	Other	1	.8%
Attending nutritional courses	Yes	19	15.8%
	No	101	84.2%
Family members	1 - 7 individuals	61	50.8%
	8 - 13 individuals	49	40.8%
	> 13 individuals	10	8.3%

Table 2:- Dietary Knowledge in English Department.

No.	Question	English Department							
		Strongly Disagree		Disagree Somewhat		Agree Somewhat		Strongly agree	
		N	%	N	%	N	%	N	%
K1	Skipping breakfast can negatively affect athletic performance	1	1.7%	1	1.7%	12	20.0%	46	76.7%
K2	Proteins are the best and most efficient source of energy	2	3.3%	7	11.7%	25	41.7%	26	43.3%
K3	Nutrition affects mental performance	0	0.0%	4	6.7%	8	13.3%	48	80.0%
K4	A pre-event meal should be eaten 3-4 hours prior to competition	4	6.7%	7	11.7%	26	43.3%	23	38.3%
K5	According to your plate, you should consume ~8 servings from the bread, cereal, rice and pasta group	12	20.0%	18	30.0%	23	38.3%	7	11.7%
K6	According to your plate, you should consume 2cups of fruit	8	13.3%	17	28.3%	22	36.7%	13	21.7%
K7	According to your plate, you should consume 3 cups of vegetables	8	13.3%	19	31.7%	20	33.3%	13	21.7%
K8	According to your plate, you should consume 3 servings from the dairy group	11	18.3%	19	31.7%	22	36.7%	8	13.3%
K9	According to your plate, you should consume	19	31.7%	20	33.3%	17	28.3%	4	6.7%

	6-7oz from the meat group								
K10	Eating breakfast can improve concentration	0	0.0%	3	5.0%	6	10.0%	51	85.0%
K11	Approximately 50-70% of total calories should come from carbohydrates	2	3.3%	9	15.0%	35	58.3%	14	23.3%
K12	Carbohydrates and protein are more quickly and easily digested without fat	5	8.3%	6	10.0%	25	41.7%	24	40.0%
K13	Excess vitamin consumption can be toxic	6	10.0%	15	25.0%	20	33.3%	19	31.7%
K14	Anemia is a deficiency in iron	9	15.0%	4	6.7%	25	41.7%	22	36.7%
K15	Average percentage of body fat in males is 18-24%	12	20.0%	12	20.0%	29	48.3%	7	11.7%
K16	Cereal, bread, bagels, and pasta are good sources of carbohydrates	4	6.7%	11	18.3%	22	36.7%	23	38.3%
K17	Nuts and beans are good sources of plant-based proteins	5	8.3%	5	8.3%	27	45.0%	23	38.3%
K18	Athletes need to consume at least 50% more protein than the general population	4	6.7%	6	10.0%	26	43.3%	24	40.0%
K19	The best sources of iron come from animal products and fish	8	13.3%	8	13.3%	22	36.7%	22	36.7%
K20	Eating cereals or breads enriched with iron should be eaten with a source of vitamin C to enhance absorption of iron	12	20.0%	14	23.3%	27	45.0%	7	11.7%
K21	Proteins act to repair and build muscle tissue and make hormones to boost the immune system	3	5.0%	5	8.3%	23	38.3%	29	48.3%
K22	Fats are essential in all diets	18	30.0%	21	35.0%	14	23.3%	7	11.7%
K23	If a diet is lacking in carbohydrates, fat and proteins are then used for energy	7	11.7%	5	8.3%	38	63.3%	10	16.7%
K24	Oatmeal, legumes, and fruits are sources of soluble fiber	7	11.7%	12	20.0%	31	51.7%	10	16.7%
K25	The recommended amount of fiber is 38 grams per day	9	15.0%	11	18.3%	38	63.3%	2	3.3%
K26	Vitamin C is also known as ascorbic acid	16	26.7%	23	38.3%	16	26.7%	5	8.3%

Table 3:- Dietary Knowledge in Clinical Nutrition and Dietetics Department.

No.	Question	Clinical Nutrition and Dietetics							
		Strongly Disagree		Disagree Somewhat		Agree Somewhat		Strongly agree	
		N	%	N	%	N	%	N	%
K1	Skipping breakfast can negatively affect athletic performance	1	1.7%	3	5.0%	12	20.0%	44	73.3%
K2	Proteins are the best and most efficient source of energy	20	33.3%	12	20.0%	18	30.0%	10	16.7%
K3	Nutrition affects mental performance	1	1.7%	1	1.7%	4	6.7%	54	90.0%
K4	A pre-event meal should be eaten 3-4 hours prior to competition	1	1.7%	9	15.0%	24	40.0%	26	43.3%
K5	According to your plate, you should consume ~8 servings from the bread, cereal, rice and pasta group	9	15.0%	16	26.7%	19	31.7%	16	26.7%
K6	According to your plate, you should consume 2cups of fruit	3	5.0%	8	13.3%	35	58.3%	14	23.3%
K7	According to your plate, you should consume 3 cups of vegetables	2	3.3%	13	21.7%	26	43.3%	19	31.7%
K8	According to your plate, you should	4	6.7%	9	15.0%	32	53.3%	15	25.0%

	consume 3 servings from the dairy group								
K9	According to your plate, you should consume 6-7oz from the meat group	11	18.3%	14	23.3%	25	41.7%	10	16.7%
K10	Eating breakfast can improve concentration	1	1.7%	1	1.7%	5	8.3%	53	88.3%
K11	Approximately 50-70% of total calories should come from carbohydrates	2	3.3%	8	13.3%	26	43.3%	24	40.0%
K12	Carbohydrates and protein are more quickly and easily digested without fat	2	3.3%	12	20.0%	18	30.0%	28	46.7%
K13	Excess vitamin consumption can be toxic	2	3.3%	5	8.3%	21	35.0%	32	53.3%
K14	Anemia is a deficiency in iron	0	0.0%	7	11.7%	15	25.0%	38	63.3%
K15	Average percentage of body fat in males is 18-24%	2	3.3%	10	16.7%	36	60.0%	12	20.0%
K16	Cereal, bread, bagels, and pasta are good sources of carbohydrates	1	1.7%	3	5.0%	16	26.7%	40	66.7%
K17	Nuts and beans are good sources of plant-based proteins	0	0.0%	6	10.0%	15	25.0%	39	65.0%
K18	Athletes need to consume at least 50% more protein than the general population	1	1.7%	8	13.3%	20	33.3%	31	51.7%
K19	The best sources of iron come from animal products and fish	3	5.0%	10	16.7%	17	28.3%	30	50.0%
K20	Eating cereals or breads enriched with iron should be eaten with a source of vitamin C to enhance absorption of iron	3	5.0%	5	8.3%	13	21.7%	39	65.0%
K21	Proteins act to repair and build muscle tissue and make hormones to boost the immune system	2	3.3%	3	5.0%	17	28.3%	38	63.3%
K22	Fats are essential in all diets	7	11.7%	14	23.3%	24	40.0%	15	25.0%
K23	If a diet is lacking in carbohydrates, fat and proteins are then used for energy	1	1.7%	16	26.7%	26	43.3%	17	28.3%
K24	Oatmeal, legumes, and fruits are sources of soluble fiber	1	1.7%	7	11.7%	30	50.0%	22	36.7%
K25	The recommended amount of fiber is 38 grams per day	5	8.3%	13	21.7%	35	58.3%	7	11.7%
K26	Vitamin C is also known as ascorbic acid	9	15.0%	11	18.3%	15	25.0%	25	41.7%

Evaluation of nutritional knowledge in study sample

Table below shows that most of students 100(83.3%) had good or excellent nutritional knowledge. Most of them 55(45.8%) were in clinical nutrition and dietetics department.There were 20(16.7%) who had fair nutritional knowledge, most of them 15(12.5%) were from English department. Therefore, students in clinical nutrition and dietetics department had better nutritional knowledge than students in English department. The difference was significant as indicated by Pearson Chi-Square (p value =.000).

Table 4:- Evaluation of nutritional knowledge in study sample.

Score	English Department	Clinical Nutrition and Dietetics Department	Total
	n (%)	n (%)	n (%)
Excellent	6 (17.6%)	28 (82.4%)	34 (100%)
Good	39 (60%)	27 (40%)	66 (100%)
Fair	15 (75%)	5 (25%)	20 (100%)

Pearson Chi-Square (2) = 21.417 p value= .000

Correlation between age, residency, department, study year and attending nutritional courses with knowledge.

Table below shows that there was a significant correlation between nutritional knowledge with department, study year also attended nutritional courses (all p values < 0.05).

Table 5:- Correlation between age, residency, department, study year and attending nutritional courses with knowledge.

Correlation		Knowledge
Age	Pearson Correlation	-.041-
	P value	.659
	N	120
Residency	Pearson Correlation	.152
	Sig. (2-tailed)	.097
	N	120
Department	Pearson Correlation	.416**
	Sig. (2-tailed)	.000
	N	120
Study year	Pearson Correlation	.186*
	Sig. (2-tailed)	.042
	N	120
Attending nutritional courses	Pearson Correlation	.223*
	Sig. (2-tailed)	.014
	N	120

*.Correlation is significant at the 0.05 level (2-tailed). **.Correlation is significant at the 0.01 level (2-tailed).

Discussion:-

One hundred and twenty students were enrolled in this study. All of them were females in English department and clinical nutrition and dietetics department. Their ages ranged between 18 years and 30 years, with a mean of 24.3 ± 3 years. The most frequent age group 68(56.7%) was located between 21-23 years, followed by age group of 18-20 years 33(27.5%), followed by age group of 24-26 years 17(14.2%). Only 2 (1.7%) students were more than 27 years. Most of study sample students 99(82.5%) were unmarried. Only 19(15.8%) were married, and 2(1.7%) were divorced.Minority of students 4(3.3%) lived in university hostel, and majority of them 116(96.7%) lived out of university hostel.The sample was evenly distributed between clinical nutrition and dietetics department 60(50%) , and English department 60(50%).The sample was equally distributed between 2^{nd}, 3^{rd}, and 4^{th} level; 40(33.3%)each.Majority of students' fathers were either employees 58(48.3%) or worked in free business 50(41.7%). However, most of mothers 98(81.7%) were housewives, followed by employees 19(15.8%). Other jobs were less frequent.45(37.5%) of students got their information from nutritionists,31(25.8%) got their information from parents, 19(15.8%) got their information from trainers, and about 24(20%) got their information from media (TV & magazines). Only 19(16%) of students attended nutritional courses. The remaining portion 101(84%) did not attend any course. Half of students are living with families that have 1 to 7 individuals, 49(41%) living with families that have 8 to 13 individuals, and 10(8%) living with families that have more than 13 individuals.

Majority of students 100(83.3%) had good or excellent nutritional knowledge. Most of them 55(45.8%) were in clinical nutrition and dietetics department.There were 20(16.7%) who had fair nutritional knowledge, most of them 15(12.5%) from English department. Therefore, students in clinical nutrition and dietetics department had better nutritional knowledge than students in English department. The difference was significant as indicated by Pearson Chi-Square (p value =.000).

And there was a significant correlation between nutritional knowledge with department, and with students attended nutritional courses (all p values < 0.05).

To discuss the results of present study from a different panel and based on the results of similar studies, as follows: From first study include 162 students, 146 were female and 16 were male. Their age between 17 years and 42 years. the most frequent age group 21.45. Also found in another study 121 students, 105 were female and 16 were male. Were conducted among students at Kent state university aged 18-34 years old. The most frequent age 18-25 years (98.3%)In another study 162 students, 146 were female and 16 were male. Their age between 17 years and 42 years. the most frequent age group 21.45[22].Also found in another study 121 students, 105 were female and 16 were male. Were conducted among students at Kent state university aged 18-34 years old. The most frequent age 18-25 years (98.3%)[23].

Amalia SN dan L.2012. reported, only around 11.6% of college students have adequate knowledge of nutrition[24]. Quaidoo EY,et.al.2018.reported, young adults (18 to 25 years of aged) in Ghana which states that the young adult group who have adequate nutritional knowledge is greater than those who have inadequate nutrition knowledge with the percentage 52.6%[25]. Mazzoni D.2018, states that most students (56.2%) have inadequate nutritional knowledge[26].

Yahia N,et.al.2016.This difference may occur because all respondents were students with overweight and obese nutritional status. Individual nutritional knowledge level is directly proportional to their nutritional status[20].

Li C-P.2017 and Rasyidah G,et,al.2020 ,reported, when the nutritional knowledge was measured in the study, it resulted in a low level of nutrition knowledge. In this study, adequate nutrition knowledge mostly obtained by female students than the males[27,28]. Li C-P.et.al,2017.Nevertheless, different results were shown in another study which stated that there was no relationship between sex and nutritional knowledge[27]. Another finding done by Yahia N,et.al.2016. reported that highest score for nutrition knowledge among normal weight students, compared to those students underweight, overweight and obese. This finding is consistent with that of Yahia[20].

Sufyan D,et.al.2019. Found the highest nutritional knowledge score among US university students with a $18.5 \leq$ BMI < 24.9. This result may be explained by the fact that normal weight individuals attempt to follow nutritional guidance to stay on the ideal body weight by making healthier food choice[29]. MakiabadiE,et.al. 2019.In this study, it was found that there was a difference in nutritional knowledge between health science students and non-health science students ($p<0.001$). Health science students have 0.04 times more adequate nutrition knowledge than non-health science students. The results of this study are in line with previous studies which stated that the study field of students had an association of nutritional knowledge ($p< 0.001$)[30].

Hong MY,et.al.2016.Nutrition students have higher knowledge of nutrition than students with other majors[31]. Medina CR,et.al.2020.There is a difference with the results of another study which states that culinary nutrition students and culinary management students do not have adequate nutritional knowledge[32].

Yahia N,et.al.2016. Health science students have different nutritional knowledge because they are more frequently exposed to nutritional information in their learning process compared to non-health science students[20]. Utami A,et.al.2019. Reported that, College students, mainly undergraduate students are a group that is rarely considered in the nutritional intervention. This may be due to perception toward the group that is considered as invulnerable adults. This group should also be given attention as they are undergoing a transitional period into adulthood. Furthermore, youth also has the same risk of nutritional problems as adolescents, yet on the other hand, also face adult nutritional problems that will have an impact on their future[33].

As the best of the author's knowledge, results from prior study on this field still give limited explanation, so, it was necessary toevaluatenutritional knowledge among medical and non-medical female students at university of science and technology in Sana'a city, Yemenas the objective of present study.

This study imply that nutrition education is needed for everyone, not to mention those who seem invulnerable, in this case young adults as they undergo the transitional phase of life into adulthood. It means that general nutrition education curriculum is compulsory in every study field.

Conclusion:-

Present study finding,students from clinical nutrition and dietetics department had better nutritional knowledge than students in English department. The difference was significant as indicated by Pearson Chi-Square (p value =.000). Andthere was a significant correlation between nutritional knowledge with department, and with students attended nutritional courses (all p values < 0.05). Because of that medical student have nutritional knowledge as syllabus on nutrition is taught so they have got better knowledge about nutrition compared to non-medical student. So, proper and adequate nutritional knowledge is vastly required to prevent any nutritional impairment, especially for undergraduate students who live in Sana'a city, Yemen.

This study provides the evidence based to advocate the policy maker on enhancing the nutritional education among transitional age group regardless their study field and empower them to become the agent on fostering healthier diet and improving nutritional status. And because of the limitation of present study.The possible gap to be filled by the

future research is by elaborating more on knowledge and practice on the facets of the Yemeni Balanced Diet (food diversity, physical activity, good hygiene and ideal body weight) to obtain comprehensive views.

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