Samsun Sağlık Bilimleri Dergisi,
Journal of Samsun Health Sciences
ISSN: 2458-8857 e-ISSN: 2791-9722, JSHS December 2021, 6(3):691-704

Assessment of Nutrition Education and Eating Behavior Among Nursing Students at Misurata University, Libya

Libya, Misurata Üniversitesi'ndeki Hemşirelik Öğrencilerinin Beslenme Eğitimi ve Yeme Davranışının Değerlendirilmesi

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Makale Bilgisi / Article Information

Makale Türü / Article Types: Araştırma Makalesi / Research Article
Geliş Tarihi / Received: 16 Kasım / November 2021
Kabul Tarihi / Accepted: 3 Aralık / December 2021
Yıl / Year: 2021 | **Cilt – Volume:** 6 | **Sayı – Issue:** 3 | **Sayfa / Pages:** 691-704

Atıf/Cite as: Mustafa, B. M., Ismail, M., Tasci, B., Ali, N. I. Elhamroush, A. ve Farveen, W. "Assessment Of Nutrition Education And Eating Behavior Among Nursing Students At Misurata University, Libya - Libya, Misurata Üniversitesi'ndeki Hemşirelik Öğrencilerinin Beslenme Eğitimi Ve Yeme Davranışının Değerlendirilmesi". Samsun Sağlık Bilimleri Dergisi- Journal of Samsun Health Sciences 6(3), Aralık 2021: 691-704. https://doi.org/10.47115/jshs.1019646

Sorumlu Yazar: Bahtinur Tasci

ASSESSMENT OF NUTRITION EDUCATION AND EATING BEHAVIOR AMONG NURSING STUDENTS AT MISURATA UNIVERSITY, LIBYA

ABSTRACT

Aim: Nutrition awareness require to identify food preferences and sensory factors; personal behavior such as perceptions, beliefs, attitudes, social habits; and ecological interactions. This is a cross-section study, it was conducted to investigate nutrition education, dietary habits, and lifestyle among nursing students, in addition, elucidate the correlations between hemoglobin level on the side and dietary habits, anthropometric measurements, and medical history on another side.

Method: Sixty-one students aged 18-30 years old were selected randomly, during the period from June up to December 2019. A well-structured questionnaire and face-to-face interview for all participants were achieved. The anthropometric assessment and blood hemoglobin level tests were measured to support investigation and evaluate health status among participants. Pearson correlation applied to discover any relationship between variables.

Results: The results revealed that the majority of subjects were 73% fall into 18-20 ages, while 51% of participants were found to be suffering from malnutrition (underweight, overweight, and obese) according to anthropometric assessment. A significant correlation ($P<0.05$) of hemoglobin level with another job and practice tea intake immediately after a meal has been detected. Whereas, there was no significant correlation ($P>0.05$) of hemoglobin level with body mass index, consumption of fast meals and practice coffee intake on daily base. The majority of students didn't consume fish and seafood but have been consumed dairy products and legumes too much within the week.

Conclusion and Suggestions: It concluded that substantial poor nutrition education and lifestyle, worsen dietary habits and eating behavior was observed among nursing students. The nutritional intervention plans often include disseminate nutrition education, change lifestyle, improve dietary habits, and eating behavior should be appreciated.

Keywords: *Anthropometry; Dietary habits; Nutrition; Nursing; Misurata*

LİBYA, MISURATA ÜNİVERSİTESİ'NDEKİ HEMŞİRELİK ÖĞRENCİLERİNİN BESLENME EĞİTİMİ VE YEME DAVRANIŞININ DEĞERLENDİRİLMESİ

ÖZ:

Amaç: Beslenme bilinci, algı, inanç, tutum, sosyal alışkanlıklar gibi kişisel davranışlar ve ekolojik etkileşimleri belirlemeyi gerektirir. Bu bir kesitsel çalışma olup, hemşirelik öğrencilerinde beslenme eğitimi, beslenme alışkanlıkları ve yaşam tarzını araştırmak, ayrıca hemoglobin düzeyi ile beslenme alışkanlıkları, antropometrik ölçümler ve tıbbi öykü arasındaki ilişkileri aydınlatmak amacıyla yapılmıştır.

Yöntem: Çalışmada, 2019 yılı Haziran-Aralık ayları arasında yaşları 18-30 arasında olan 61 öğrenci rastgele seçilmiştir. Anket çalışması iyi yapılandırılmış olup, tüm katılımcılarla yüz yüze görüşme yapılmıştır. Araştırmayı desteklemek ve katılımcılar arasında sağlık durumunu değerlendirmek için antropometrik değerlendirme ve kan hemoglobin düzeyi testleri yapılmıştır. Değişkenler arasındaki ilişkiyi bulmak için Pearson korelasyonu kullanılmıştır.

Bulgular: Sonuçlar, antropometrik değerlendirmeye göre katılımcıların %73'ünün 18-20 yaş aralığında olduğunu, %51'inin yetersiz beslenmeden (zayıf, fazla kilolu ve obez) muzdarip olduğunu ortaya koymuştur. Hemoglobin düzeyi ile yemekten hemen sonra çay tüketimi arasında önemli bir korelasyon ($P<0.05$) saptanmıştır. Ancak, hemoglobin düzeyi ile vücut kitle indeksi, hızlı yemek yeme ve günlük olarak kahve tüketimi arasında anlamlı bir korelasyon ($P>0.05$) bulunmamıştır. Öğrencilerin çoğunluğu balık ve deniz ürünleri tüketmezken, hafta içinde süt ürünleri ve bakliyatları çok fazla tüketmiştir.

Sonuç ve Öneriler: Hemşirelik öğrencileri arasında beslenme eğitiminin önemli ölçüde yetersiz olduğu, sağlıksız beslenme alışkanlıkları, sağlıksız yaşam tarzı ve yeme davranışlarının gözlendiği sonucuna varılmıştır. Beslenme müdahale planları genellikle beslenme eğitimini yaygınlaştırmayı, yaşam tarzını değiştirmeyi, beslenme alışkanlıklarını iyileştirmeyi ve yeme davranışı farkındalığını içermektedir.

Anahtar Kelimeler: *Antropometri; Beslenme alışkanlıkları; Beslenme; Hemşirelik; Misurata*

INTRODUCTION

Nutrition knowledge and awareness regarding good eating habits is vital to establish during puberty. The well-balanced and adequate diets are essential for proper growth, immunity and physical development, health and well-being, and reduced risk of chronic diseases later in life. Health care givers should be aware of common nutrition-related concerns during childhood, such as allergies, dental caries, growth retardation, eating disorders and physical morbidity. The recommended healthy diet for children include vegetables, fruits, whole grains, legumes, low-fat dairy products, and lean rich sources of protein (Kathleen, 2008; Khandelwal & Kurpad, 2014).

The Mediterranean diet is diversity food with many elements are currently under the risk of extinction of the effects of globalization, the homogenization of lifestyles, the loosing of awareness, meanings, understanding, and appreciation, which lead to the erosion of the Mediterranean heritage and the lack of interest among younger generations about their heritage. The Mediterranean diet understood as a lifestyle in continued evolution through time, is a complex system of shared knowledge related to food and people, a result of a particular environmental historical multifaceted geographic region (Elena et al., 2020).

Body weights are increasing in all countries and across all age groups, particularly in teenagers. The enlarged burden of adult obesity recently involves not only its increase in prevalence, but also the more frequent occurrence of its associated co-morbidities, such as diabetes type II, cardiovascular diseases, and hypertension. Recent researches have indicated that obesity caused by a complex set of interactions involving genetic, diet, activity levels, and environmental factors (Aravind et al., 2021). However, when one considers the genetic pool, it has not changed dramatically within one or two generations, leading some to assert that at a population level, changes in diet, physical activity, and environment are likely the key factors that have contributed to an increase in overweight and obesity prevalence seen in recent years (Mustafa et al., 2018). Recent studies have determined the associations between physical activity and dietary habits with overweight in some countries, it is not clear if their findings can be generalized to other ethnic groups with different cultures and lifestyles (Erica et al., 2021). In addition, the sedentary life is indicator related to the risk factors of many diseases like cardiovascular diseases, diabetes, depression, blood pressure and obesity. It will be related to the physical inactivity before adulthood; therefore, health promotion of physical exercise may be important to prevent many diseases even during middle ages.

This study aimed to:

Investigate nutrition education, lifestyle, and dietary habits among students of nursing and health sciences.

Find out the relationship between hemoglobin level, body mass index, and some dietary habits among students.

To elucidate correlation ship between dietary habits and medical history among students and blood transfusion.

Study limitations

This study has some limitations. A structured questionnaire used to collect information of all participant in this study. Unfortunately, some participants refused to answer on some questions related to annual income in spite of all participants signed on consent form before interview.

MATERIALS AND METHODS

Area of study

Misurata is one of the bigger cities on the Mediterranean coast located northwestern of Libya, it is a way 187 km (116 mi) the east of capital of Libya. The population of about 550,000 approximately. It is trade capital of Libya according to many investments and business. It lies at a longitude is 32 o.377533" N and Latitude is 15o.092017" E. It located is at 23 feet above the sea level.

Research Design

The research design has selected according to the purposes of research, which provides a framework to conduct research on reliable plan and producible research output. The descriptive cross-section study used to evaluate the knowledge, awareness of nursing students about healthy nutrition and lifestyle, which needed to prevent malnutrition and maintain their health.

The nutrition survey had done through a well-structured questionnaire, that was distributed and the interview was conducted face to face among students in Faculty Nursing and Health Sciences, the survey was included demographic characteristics, anthropometric measurements, dietary assessment, medical history, and blood hemoglobin test.

Study population

Study populations informed about the purposes of study, sampling procedures, privacy and security. They signed the study consent forms. The study has targeted the students of nursing at Misurata University. Sixty-one students were included male and female, their ages from 18-30 years old were selected randomly.

The participants eligibility was recognized through the following criteria: 1) non-alcoholism; 2) generally healthy; 3) not to be pregnant or lactating; 4) not diagnosed with eating disorder; 5) no metabolic, or neurological conditions, or intake medications that affect food metabolism and gastric disorder; 6) no bleeding disorders.

Study duration

The study was conducted within six months. From June up to the end of December 2019. The duration was distributed among data collection, analysis and interpretation, and report writing.

Data collection and procedures

Questionnaires

According to the population of the study, many students were given a personal interview and a questionnaire after that anthropometrics measurements and blood samples should be taken.

Anthropometric data

The weight and height of each participant were recorded. The anthropometric measurements were collected thereafter BMI (calculated as kg/m2) was calculated using procedure stipulated by WHO (2004) for taking anthropometric measurements and evaluation.

Blood sampling and procedure

61 blood samples were obtained during the study. Where blood sampling was drawn out from each participant. 2.5 ml of blood sample was drawn out into an anti-coagulant tube and caped loosely. Each tubes containing a 2.5 (EDTA) Ethylene Di Amine Tetra Acetic Acid. All blood samples were collected and transferred immediately to laboratory analysis.

Blood analysis

In the laboratory, about 61 EDTA blood samples prepared for analyze complete blood count (CBC). The analysis was done using the Sysmex Automated Hematology Analyzer device(XK-21N-2012) made in German. Respondents classified according to hemoglobin level classification of WHO (2000).

Data quality management

The structured questionnaire was prepared in English and translated into the Arabic language. A pre-test of the questionnaire was done before actual data collection to see for accuracy and response and to estimate which time it is needed.

Statistical analysis

To perform calculations for statistical analysis, SPSS Statistical version 18 and Graphs were used. Pearson Correlation utilize to identify the relationship between variables. If P-value is less than 0.05 the relationship between the two variables is significant, it will be identified with star.

RESULTS AND DISCUSSION

The study was carried out to identify lifestyle and nutrition awareness among students of nursing. The anthropometric, dietary, and laboratory parameters had been measured.

The classification of the study population under age groups and gender are shown in table 1. It was found that the majority of respondents 73% (45 out of 61) were attributed to the age group (18-20) years old. Whereas, other students of age groups (21-23), (24-26), and (27-30) were recorded 21%, 4%, and 2% respectively. The distribution of the samples according to gender, the majority of respondents as male, they were 52% whereas, female 48% of the total study population. There was no significant (P>0.05) correlation regarding gender groups.

Table 1. The classification percentage of the study population by age groups and gender.

Group	Female	Male	Total population
18-20	36%	37%	73%
21-23	10%	11%	21%
24-26	2%	2%	4%
27-30	0	2%	2%
N	29	32	61

Percent	48%	52%	100%

The classification of female into the different categories according to Body Mass Index (BMI) is shown in Figure 1. The result found that the majority 52% of the female were normal then followed by overweight females were 28%, whereas other females were classified as obese class two, obese class three, obese class one and mild thinness, whose were 7%, 7%, 3%, and 3% respectively. While, classification of male into the different categories according to body mass index, the result revealed that the majority 53% of males, they had malnutrition. They were classified as overweight, obese class one, obese class two, obese class three, and mild thinness about 19%, 16%, 3%, 6%, and 9% respectively. The relationship between hemoglobin and BMI regarding study population, the result revealed that there no significant (P>0.05) correlation between hemoglobin and BMI among all samples of study, thus show in table 2. This finding is slightly similar to that reported; there was a significant negative relationship of blood Hemoglobin level with body mass and body composition. Hence, any increase in body fat might attributed to lower blood hemoglobin level (WHO, 2004).

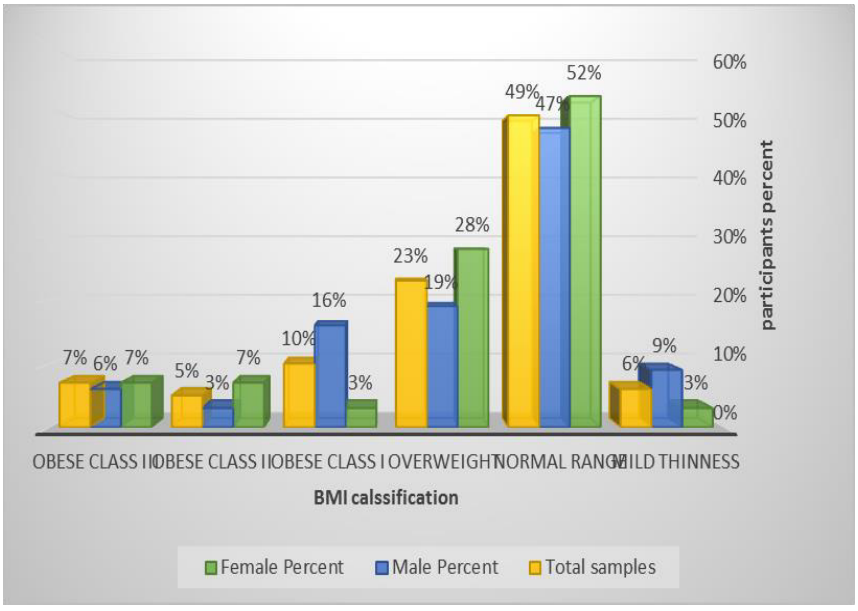

Figure 1. Classify participants according to BMI categories.

Table 2. Study the relationship between Hemoglobin and other variables.

Variables	Personal Correlation	All Sample	Male	Female
The correlations between Hb and BMI.	P. Correlation P-value	0.165 0.205	0.192 0.293	0.328 0.082
The correlations between Hb and additional job	P. Correlation P-value	0.410 0.001*	0.178 0.328	0.015 0.792
The correlations between Hb and Coffee after a meal	P. Correlation P-value	0.184 0.156	0.015 0.934	0.036 0.852
The correlations between Hb and drink tea after a meal	P. Correlation P-value	0.288 0.024*	0.228 0.209	0.108 0.577
	N	61	32	29

(P<0.05) * indicates a significant correlation between two variables

In figure 2. shows the distribution the study samples according to students, whose usual eating breakfast regularly, fast meal, dealing another job after study hours and blood transfusion practice. The results revealed that the majority (66%) of students skipped up breakfast while a low proportion (34%) of students were eating breakfast regularly. They have attended the faculty in the early morning, which might impact on nutrition regimen of students. Probably many students skipping up breakfast completely because there was no time to prepare food before, students who don't eat breakfast may not get a chance to eat until lunch. If the entire morning is spent in a state of hunger, students are more likely to do a negative effect on their health. Ruth (2011) reported that early detection of IDA through dietary assessments and simple blood tests, followed by effective treatment, ensures all students will be healthy and ready to learn. The results revealed that there was a significant (P<0.05) correlation (P=0.018) between hemoglobin and breakfast intake among the whole population of the study. Whereas, no significant (P>0.05) correlation of hemoglobin with male or female samples, which is shown in table 2. Without an adequate breakfast, they will not be able to concentrate or pay attention then owing to poor cognitive. In addition to impaired nutrient status can make immune responses, making them more susceptible to common illnesses (Ruth, 2011). The results found that the majority (84%) of students were usually consumed fast meals when only 16% of students, whose didn't eat fast meals ever.

The results showed that, the majority (52%) of students, those who have full time for study without dealing another job while 48% of student's, those who have dealing another job after study hours, thus illustrates in Figure 2. Generally, the results revealed that there was a significant (P<0.05) correlation (P=0.410) of Hb level with another job practice for all study populations of the current study. An additional job was practiced by many students after study hours to cover their living and study expenses. Also, the result found that the majority (72%) of students haven't practiced blood transfusion in their life compared to (28%) of students who have practiced blood transfusion regularly with interval time. Carson et al; (2012) stated that blood transfusion must be highly restricted of patient with chronic anemia. It might respected for patients with active bleeding who are hemodynamically unstable, or for patients with critical anemia (Hb level <7 g/dL).

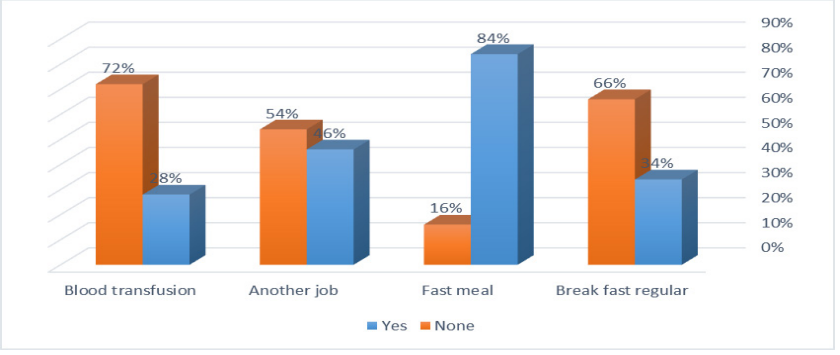

Figure 2. Distribution of study sample by Blood transfusion practice, another job, fast meal and eat breakfast regularly.

Figure 3, illustrate the students who had practiced tea intake immediately after a meal or don't practice, the results showed a low proportion (30%) of students, those had practiced tea intake immediately after the meal when the majority (70%) of students, who were didn't practice tea intake immediately after a meal. However, the results demonstrated that there was a significantly (P<0.05) correlation (r=0.024) of hemoglobin level with whose had practiced tea intake immediately after a meal. While investigated students, whose had practiced coffee intake or didn't, the result revealed that, majority (67%) of students, whose had practice daily coffee intake, whereas a low proportion of students, had not practiced coffee intake ever. However, the results demonstrated that no significant (P>0.05) correlation (r=0.156) of hemoglobin level with those who were practiced coffee intake, thus show in table 2. This is finding closed to some studies reported that certain foods can inhibit bioavailability of iron when eaten in large amounts, these include coffee, tea and calcium rich foods such as dairy products and phytate containing food (sothern, 2004).

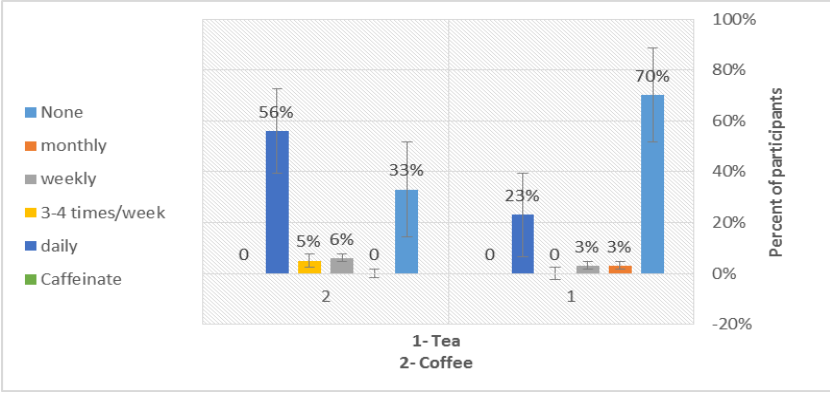

Figure 3. Study of participant's percent, who were took caffeinate drinks

Table 3 illustrates the proportion of the study population, who intake multivitamins supplements or not, the results showed the majority (93%) of students didn't intake multivitamins supplements when, 7% of students, whose were utilized multivitamins supplements occasionally. Also, the majority (90%) of students, whose didn't intake iron supplement except for few proportions (10%) of students those who had utilized iron supplement.

Table 3. Multivitamin and iron supplements intake by participants.

Parameters	Yes		No	
Nutrient	F	P	F	P
Vitamin supplements	4	7%	57	93%
Iron supplements	6	10%	55	90%

Figure 4. shows the distribution of the study population according to dietary history for like or dislike foods in their nutrition regimen. The results demonstrated that the majority (57%) of students have been consumed chicken meal rather than eggs and red meat were 24% and 19% respectively. While the result revealed that there was very little proportion (4%) of students, whose has been consumed fish but the majority (96%) of students, whose were dislike consume fish. Some of them justified that fish is not abundant or may expensive. The proportion of students who never eat egg, meat or chicken were 76%, 68% or 41% respectively. The majority (87%) of students have been consumed vegetables compared to those who haven't been consumed vegetables. This finding accepted that community cultures, dietary habits, and eating behavior, which restricted regular consumption of some food thus regardless of consumption of vegetables according to dietary recommendations (Whiteny & Rady, 2013). While the majority (89%) of students who have

been consumed fresh fruits but low proportion did not consume fresh fruit 11% respectively. The result revealed that a higher proportion (81%) of students have consumed legumes regularly. It is also showed the majority (77%) of students have been consumed milk and dairy products daily or regular where few ones (23%) never consume milk and dairy products, this may be attributed to the dietary habits of their community, its available in the markets, and its low price.

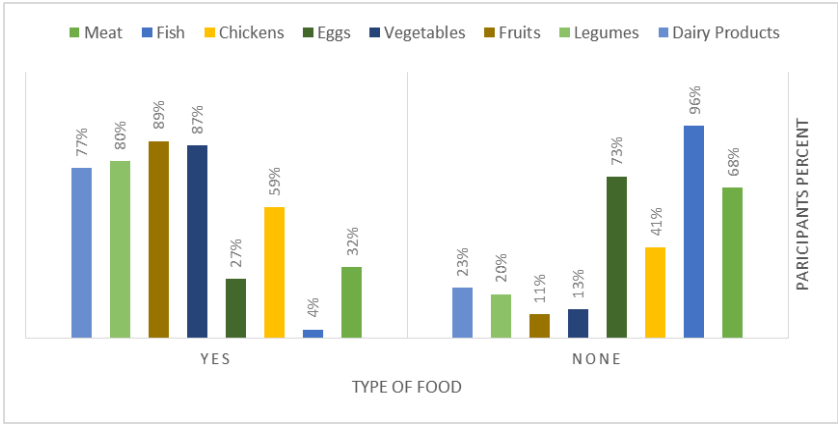

Figure 4. Distribution of participants according to the type of food intake.

Figure 5 shows the distribution of study samples according to medical history. The majority (90%) of students have been healthy and fit. whereas, little proportion (10%) of students, those who have hypertension, hypotension, sinusitis, stomach disorders and blood disorder.

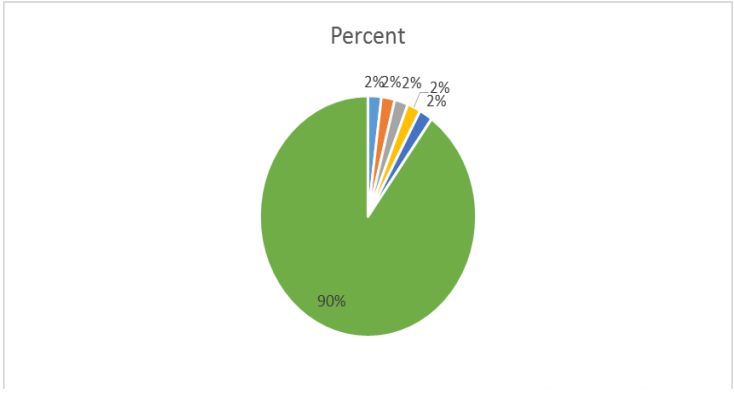

Figure 5. Medical history of participants.

CONCLUSION AND RECOMMENDATION

- There was found a substantial poor lifestyle and nutrition education, that were observed among nursing students, that based on their nutrition regimen and dietary history.

- There was evidence concerning the significant correlation of Hemoglobin level with BMI, dealing with another job after study, practicing tea intake immediately after a meal, and skipping up breakfast.

- Nutrition education plans should often include improving community habits, nutrition regimen, and change eating behavior. The best diet plans to maintain the normal level of hemoglobin include intake iron and vitamins rich foods essential for hemoglobin formation and red blood cell production. It recommend foods that help absorption of iron better such as protein diet, red meat, and fresh vegetable and fruits.

- Foods rich in calcium, such as dairy products should be limited because calcium reduces the absorption of iron in the body and thus worsen the situation.

- Reduce drinking tea and coffee after the meal as much as possible.

- Nutritional interventions in form of change lifestyle, improve dietary habits, and physical activity to improve appetite. A balanced diet and food diversification should be appreciated.

Conflıcts of Interest

We have no conflicts of interest.

Authorshıp Contrıbution Statement

Concept: A.B.M

Design: M.I.

Data Collection: N.I.A., A.B.M

Analysis: A.E

Literature Search:W.F

Writing-review & editing: A.B.M, B.T.

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