ANALYSIS OF INFLUENTIAL FACTORS ON NUTRITION BEHAVIORS OF STUDENTS IN SALAMAT HIGHER EDUCATION COMPLEX OF CHABAHAR

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ABSTRACT

Background and aim: Diet and nutrition play a very important role in human life and health from birth to death. The present study aims at determining influential factors on nutrition behaviors of the students of Salamat Higher Education Complex of Chabahar, based on Proceed-Proceed Model. **Materials and Methods:** In this cross-sectional descriptive-analytical study, 65 students of Chabahar Health Higher Education Complex were selected by random cluster sampling method in 2012. A researcher-made questionnaire was comprised of three parts: demographic information, model constructs and nutritional behaviors. Data were analyzed by means of mean, standard deviation, Pearson correlation coefficient, Kruskal-Wallis test and linear regression using SPSS software. **Results:** The mean score of knowledge was 8.89 ± 1.71, the mean score of attitude was 18.46 ± 3.52, and the average score of the enabling factors was 16.87 ± 2.29 and the mean of the reinforcement factors was 12.09 ± 1.28. Mean score of nutritional behavior was 20.26 ± 4.03. **Conclusion:** considering the unsatisfactory nutritional behavior of students and the direct correlation between attitude and behavior, it is suggested that appropriate interventions, especially educational interventions, should be designed to enhance nutritional behavior of students with an emphasis on the attitude structure.

Keywords: Nutritional Behaviors, Students, Chabahar.

INTRODUCTION

Diets and eating habits play a very essential and important role in human life and health, since his birth until his death. By choosing his food, human may either put his health at risk or improve it Teenagers and youths' health is fully associated with the hygiene behaviors they choose. Such ages witness rapid behavioral pattern changes [1] that expose people to the expansion of dangerous hygiene behaviors like inactivity, inappropriate eating habits, smoking, and drinking alcohol, the impacts of which remain for years, even forever [2].

Health and behavior are connected to each other, as many diseases are rooted in inappropriate behaviors and habits. An individual's behavior can either increase or decrease the possibility of getting cancer, brain and heart strokes, and their damages. It is, thus, useful to predict or determine the behavior to search for effective measures in order to decrease catching various diseases and to improve health, since many chronic diseases are originated from unhealthy behaviors. Wrong nutrition is one of the bases of unhealthy life, being one of the most important factors for chronic diseases such as Diabetes Type 2, cardiovascular diseases, and many types of cancer, which charges the medical sector for billions of dollars in and declines the annual production [3]. Results from an analysis in the US showed that from every 10 fatal factors, four were related to people's nutrition [4]. According to the American Heart Association, improper nutrition is among amendable factors that put an individual at the risk of cardiovascular diseases [5]. Almost half of the early deaths at ages below 65 are from diseases, related to nutrition one way or another, which can be prevented [6]. Correct awareness, strong belief, and appropriate nutrition behavior are important factors for better living and perfect utilization of the existing conditions in life. In other words, better living depends on healthy nutrition [7].

Each year, more than a third of the population in developing countries are affected by diseases from foodstuff. Millions of people get sick from the consumption of unhealthy foods, many of whom die, as a result [8].A great part of the Iranian population is made of the young, a high percentage of whom are university students. During this period, students eat irregularly. Also fear of getting fat, having an unsuitable body, and not gaining an appropriate place among their peers lead to some changes in their food-reception patters and, consequently, insufficient reception of nutrition [9].

On the other hand, young people's tendency to go on a diet in order to lose weight and have a suitable body as well as their lack of nutritional knowledge in this aspect has caused them omit useful foodstuffs such as bread, potatoes, milk, and meat. Not consuming such nutritional substances results in a lack of receiving energy as well as some nutrients including protein, iron, etc. [10]. Different studies have dealt with influential factors on people's nutrition, such as the one by Mehrabian et al. [11] and Zamanian Azodi et al. [12] which studied the influential factors on nutrition behaviors.

Experts in the area of hygienic training and health development suggest a range of varying models to explain the influential factors on behavior, one of which is Proceed-Proceed Model. An important model of health training, Proceed-Proceed Model is useful in all levels of prevention. It established a specific attitude model for analysis [13] and analyzes the influential factors on behavioral changes [14]. Moreover, it is one of the most useful models in hygienic training and health development [15]. Prepared by Green et al., the model looks like a roadmap, being a specific road to reach the destination [16]. As a designing tool as well as a framework to organize and design programs in various fields of science such as behavioral, social, epidemiological, and administrative sciences, the prediction capability and validity of this model have been confirmed [17]. Proceed-Proceed Model analyzes the individual's behavior in three important fields [18]: The first one includes the predisposing factors that precede

behavioral changes and provide motivations for a behavior, e.g. knowledge, belief, attitude, and value.

The second area are the enabling factors, which facilitate the display of a behavior in an individual, e.g. access to the resources, rules, and skills. And the third area is the reinforcement factors, which perpetuate a recommended behavior by providing a reward or an incentive, e.g. family, peers, teachers, etc. [19]. By adopting healthy nutrition behaviors, not only can students of medical sciences directly affect their own as well as their family's well-being, but they are able to indirectly influence the well-being of society individuals. As a result, the present study aims at determining influential factors on nutrition behaviors of the students of Salamat Higher Education Complex of Chabahar, based on Proceed-Proceed Model.

METHODOLOGY

The study is a descriptive-analytical one with a cross-sectional method, conducted in 2017 on 65 boy and girl students of Salamat Higher Education Complex of Chabahar who were studying in the fields of public health (fighting diseases, family health, anesthetics, operation room, oral health technician, and midwifery). Given the 12% outbreak of fruit consumption in the study by Suleimani et al. [2] and considering the 5% alpha as well as error rate of 0.08%, the sample size was set as 63 people; ultimately in order to increase the precision of the study, 65 individuals entered the study through random cluster sampling method.

The criteria to enter the study included having a tendency to participate in it, not having a disease that required a specific diet, and not being on any particular diet in general. After obtaining an introduction letter from Education and Research deputy of the complex, two students of public health gave sufficient explanations about the goal of conducting the research and informed the students about the research, then to distribute the questionnaires among them and the students who were willing to participate in this study filled the questionnaires. As the information gathering tool, the questionnaire included 52 questions, organized in three sections:

1. Demographical information: which contained 9 questions, gathering such information as age, sex, marital status, the field of study, family's income, father's occupation, mother's occupation, father's education, and mother's education.

2. The questionnaire, related to Proceed-Proceed Model: The second part was the questions, based on the model's constructs, including the constructs of the predisposing factors: awareness (12 questions) and attitude (9 questions), reinforcement factors (5 questions), and enabling factors (7 questions).

3. Nutrition behaviors' questions: The third section of the questionnaire included 10 questions about the students' nutrition behaviors.

In order to determine the validity (CVI-CVR) of the information-gathering tool, the questionnaire was given to 10 experts of hygiene and nutrition education. In this research, the questionnaire's CVI turned out to be 0.8. As for its reliability, the questionnaire was handed to 20 students of Salamat Higher Education Complex of Chabahar, who were not included in the study later on. In order to estimate the reliability of the questions inside the questionnaire, Cronbach Alpha was used, which turned out to be 7.9. The questionnaire was scored in this way that for awareness questions, a correct answer received 1 and a wrong one, zero. Hence, the scores ranged between 0 and 12. For all attitude questions, which were 3-degree scale (always, sometimes, and never), "always" received 3; "sometimes", 2; and "never", 1; except for question No. 2 which gained a score of 3 for

"never", 2 for "sometimes", and 1 for "always". The scores ranged between 9 and 27. As for the questions of reinforcement and enabling factors constructs, the choices of which were in a three-state scale, "yes" got a score of 3, "somehow", 2; and "no: 1. The scores from the questions of reinforcement and enabling factors ranged from 5 to 15 and 7 to 21, respectively. In order to take moral measures, while obtaining the participants' consent, they were assured about the confidentiality of their information. The data got analyzed by means of SPSS-16 as well as statistical methods of mean, standard deviation, Pearson Correlation Coefficient, Kruskal-Wallis Analysis, Pearson Correlation Coefficient Test, and linear regression.

FINDINGS

The age of the participants in the study ranged between 18 and 32, with an average and standard deviation of 21.58 ± 2.48, with the majority of the studied individuals (53 people, corresponding to 82%) belonging to the 20-25 age group. Among the participants, 49% were male and 51%, female. Based on Kruskal-Wallis Analysis, the difference of the average score from the constructs of Proceed-Proceed Model (awareness, attitude, reinforcement factors, and enabling factors) and nutrition behavior was not statistically meaningful among fields of study ($p > 0.05$).

Most of the students, taking part in the study, studied public health (35%) and oral health technician (23%). The father's occupation for most of the studied people was a worker (60%) and the mother's occupation, housewife (89%). Table 1 shows the details about the studied people's age.

Table 1: Demographical characteristics of the students of Salamat Higher Education Complex of Chabahar

Variant		Number	Percentage
Sex	Male	32	49.2
	Female	33	50.8
Marital Status	Single	52	80
	Married	13	20
Father's educational level	Illiterate	16	24.6
	Elementary School	13	20
	Secondary School	4	6.2
	High School	13	20
	University	15	23
Mother's educational level	Illiterate	30	46.2
	Elementary School	16	24.6
	Secondary School	8	12.3
	High School	5	7.7
	University	4	6.2
Family income (in toman)	Below 1,000,000	14	21.5
	1,000,000 – 2,000,000	20	30.7
	2,000,000 – 3,000,000	25	38.4
	Above 3,000,000	6	9.2

According to this study's results, the average score of awareness was 8.89 ± 1.71; attitude, 18.46 ± 3.52; enabling factors, 16.80 ± 2.29; and reinforcement factors, 12.09 ± 1.28. The average score of nutrition behavior turned out to be 20.26 ± 4.03.

As many as 50% of the male students and 18% of the female ones had not had breakfast, one week prior to the study. As for snacks, 44% of the male students had not eaten any snack during the week before. A total of 67% of male students had drunk carbonated beverages, once or twice a week, whereas drinking carbonated beverages among female students was 30%. Table 2 gives several details concerning nutrition behaviors of the studied people.

Table 2: Frequency of nutrition behaviors among the students of Salamat Higher Education Complex of Chabahar.

Variant	Sex	Number (Percentage)	Variant	Sex	Number (Percentage)
Eating breakfast	Male	4 (12%)	Drinking carbonated beverages	Male	26 (81%)
	Female	11 (33%)		Female	12 (36%)
Eating snacks	Male	1 (3%)	Eating fruits	Male	28 (87%)
	Female	5 (15%)		Female	33 (100%)
Eating candies and chocolate a lot	Male	1 (3%)	Consuming milk and yogurt	Male	21 (66%)
	Female	4 (12%)		Female	20 (61%)
Eating chips	Male	2 (6%)	Drinking yoghurt drink (doogh)	Male	3 (9%)
	Female	6 (18%)		Female	1 (3%)

Pearson correlation coefficient showed that among the constructs of Proceed-Proceed Model, there was a meaningful relation between attitude and nutrition behavior of the participating students ($p < 0.05$) (Table 3).

Table 3: Correlation matrix of nutrition behavior and Proceed-Proceed Model Constructs.

Variant	Awareness	Attitude	Enabling Factors	Reinforcement Factors	Behavior
Awareness	1				
Attitude	- 0.018	1			
Enabling Factors	0.007	- 0.157	1		
Reinforcement Factors	- 0.068	0.035	0.091	1	
Behavior	0.101	0.263[*]	- 0.012	0.062	1

[*] **Meaningful at $p < 0.05$ level**

Results from linear regression showed that among all constructs of Proceed-Proceed Model, attitude predicts nutrition behaviors among the students, participating in the present study ($p<0.05$), i.e., attitude construct predicts 26% of healthy nutrition behavior changes among the students of Salamat Higher Education Complex of Chabahar (Table 4).

Table 4: Results of the linear regression of Proceed-Proceed Model Constructs on nutrition behavior.

	Regression coefficient	Standard deviation	Beta	p-value
Awareness	0.88	0.29	0.11	0.380
Attitude	2.11	0.14	0.26	0.039
Enabling factors	0.17	0.22	0.02	0.864
Reinforcement factors	0.58	0.07	0.07	0.562

DISCUSSION

Results from the present study, which was conducted with aim of determining the influential factors on nutrition behaviors of the students of Salamat Higher Education Complex of Chabahar based on Proceed-Proceed Model, showed that the average score of students' awareness about nutrition behaviors was 75%, indicating average awareness in this regard. In the study, carried out by Haji Kazemi et al. [21], 18.5% of the women had sufficient women's information about the correct ways of cooking various nutrients. In the study by Salehi et al. [22], 23.7% of the women of Fereidon City, were appropriately aware of nutrition behaviors, which was less than the awareness of the participants in our study. This difference is probably due to the difference in the participating groups of the study and due to the fact that all participants of the present research were students of medical sciences.

Our study findings showed that almost 42% of the students had healthy nutrition behaviors. Such a low rate of nutrition behaviors among them can be probably related to their attitude on not attaining a favorable position among their friends and peers due to their fear of obesity and having an inappropriate body which will ultimately change their food-reception patterns and will consequently result in insufficient reception of nutrients in them. Results from the study, conducted by Jalili et al. [23] on pregnant women in Tabriz, as well as the one by Jahanbani et al. [24] on parents and teachers of elementary schools in Khorram Abad, were compatible with results of the current study. However, the study by Keshavarz et al. [3] on female workers of Abbas Abad Industrial Park, Pakdasht, along with the one by Ostad Rahimi et al. [25] on the women, employed in Tabriz University of Medical Sciences, showed that despite sufficient awareness of the studied peoples, the rate of their nutrition behavior was weak.

Results from the present study showed that attitude construct, capable of playing an important role in nutrition behaviors of the students, was at an average level. Results of the study by Abdollah Thani et al. [8] on kitchen personnel as well as the study by Salehi et al. [22], confirmed the results of our study, though it differed from the results of the study by Ansari et al. [26].

Our study's results showed that enabling factors, which pave the way for displaying a behavior in an individual, were almost in an average level. In a study by Salehi et al. [22] and Mehrabian et al. [11], enabling factors were influential in facilitating nutrition behaviors of the individuals under their study.

Considering the results of the present study, reinforcement factors in this research, which included the influence of the family, friends, classmates, professors, and spouse (for married students), proved to be good. Also in the study by Orouji et al. [28] and Mazloumi et al. [29], reinforcement factors had an influence on behavior, too. Based on the obtained results from the present study, it seems that behavior is a complicated phenomenon and the programs that merely increase the individuals' knowledge, regardless of the role of influential factors on behavior (awareness, attitude, and enabling and reinforcement factors), fail to promote healthy behaviors. In order to report healthy nutrition behavior, this study used self-reporting method, which is one of the limitations of this study.

CONCLUSION

The reinforcement factors construct was in a good status, yet awareness, attitude, enabling factors, and behavior was on average. Therefore, given the unfavorable nutrition behavior of the students as well as the direct correlation between attitude and behavior, it could be helpful to make necessary interventions, particularly didactic ones, in order to promote nutrition behaviors of the students with an emphasis on attitude construct, while

attracting them and making them interested in correct nutritional habits by following appropriate eating patterns. Also holding healthy food contests and festivals in the level of higher education complexes, universities, and dormitories, creating an environment, supportive of health, for the students and encouraging them to have a healthier lifestyle, along with providing nutritional facilities for the students are equally useful in this regard.

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