

## Physical Activity and Nutrition Status in the University Students: A Mix method Study

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### Abstract

**Introduction:** This study examined the beliefs of a group of university students about physical activities, healthy nutritional patterns in the context of Tehran, Iran.

**Methods:** This study was a mixed method. Participants of the study were 100 university students that selected by convenience sampling method from Tehran-located universities (Iran). Interviews and questionnaires instruments were used to collect the data.

**Results:** Only 30% of them had regular physical activity. Body Mass Index (BMI) has mostly been in the normal range and % 17 were overweight. The important barriers were university courses, living in out-of-home settings, and time shortage as the factors barred them from having physical activities and healthy nutrition patterns. Students' knowledge about the benefits of a healthy lifestyle was desirable.

**Conclusions:** Living in academic settings and preparing for exams which triggers stress, reduce healthy nutrition pattern and physical activities as two factors related to life quality. Therefore, planning and evaluation of environmental health-promoting interventions was proposed.

**Key words:** Lifestyle, Diet, Students, Motor Activity.

### 1. Introduction

Lifestyle and health-related behaviors such as unhealthy dietary habits and physical activity doesn't only relate to mortality rate and disabilities resulting from chronic diseases [1,2], but also they have been highly expensive and decrease the productivity of a society[3]. According to the World Health Organization(WHO), non-communicable diseases can account for approximately three-fourth of the death toll in developing countries by 2020[4].

Now, it is known that there is a relationship between nutrition and chronic diseases such as cancers, cardiovascular diseases, diabetes, and strokes [5,6]. Also, nutrition influences risk factors of diseases such as hypertension, diabetes melitus, and obesity [7]. On the other hand, physical activities, which are an integral part of a healthy lifestyle, affect cancers, diabetes melitus type II, obesity, and Osteoporosis [8-10]and death toll and disabilities from chronic diseases [11-13]. Also, physical activities can improve individuals' psychological welfare, self-esteem, self-efficacy, and decrease anxiety and depression [14]. According to the WHO, physical inactivity takes the lives of 1.9 million people annually [15]. Generally speaking, a top priority of public health centers is to expand healthy lifestyle programs so as to decrease heart diseases and cancers, etc [16].

In the context of Iran, chronic diseases, especially cardiovascular ones, are the main cause death and disability. The expectation is that the development of

cities and the resultant sedentary lifestyle makes the diseases more prevalent in the future [17]. This means that in the next decades, the young population is more likely to suffer from chronic diseases[18]. For example, Kimiagar et al. state that the fat consumption of Iranians has doubled in the past 30 years [19]. In a similar study, Mirmiran et al. (2009) note that 20.9 percent of Tehran-living adults has no healthy and suitable nutrition [20]. Hejazi and Mazlumi studied the out-of-home nutrition of a group of juveniles living in Shiraz and found that fat consumption is the main source of required calorie among the group[21]. Other studies report the nutritional status of different age groups, including children [22] and the old [23, 24], according to which 12% of Iranian people suffer from malnutrition [25]. In a study about physical activity, Sheikholeslam, et al. show that Iranian adults are physically inactive [26]. According to Esteghamati et al., 40% of Iranians, especially girls when they grow older, have negligible activities [27].

One of the theories is "theory of planned behavior (TPB) proposed by Fishbein and Ajzen. A key element of the model is individuals' intention which is informed by the three following factors: attitude, subjective norms and perceived behavioral control [28]. Various studies have employed (TPB ) to account for doing or not doing physical activity [29, 30]. Therefore, qualitative items of the questionnaire were used to elicit information concerning nutrition and physical activity. The readiness for physical activity has been borrowed from trans-

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theoretical model (TTM) of Prochaska and DiClemente. Using TTM, several studies have explained physical activity behaviors [31, 32]. The model is one the most acceptable theories about health behavior change, which has been particularly used in health behavior areas such as physical activity, nutrition, diet, and HIV/AIDS prevention. Especially, the predictive power of the model about transmission steps has been confirmed [33]. According to the model, behavior change occurs through a number of stages [34], Because physical activity and nutrition occurs step by step, in the present study, TPB and change steps of TTM have been used as the theoretical bases for data collection.

The 18-25 age range is the period of maximum growth and therefore, adults are exposed to many unhealthy behaviors [35, 36]. There are many evidences reporting poor nutrition and physical activity and unhealthy weight control methods among university students [37]. The studies emphasize the importance of investigating the lifestyle of young people. Students comprise the bulk of young population [38] and attempts to promote their health results in the promotion of their learning quality [39]. Thus, the present study aimed at studied the knowledge level, nutrition patterns, and healthy nutrition barriers and physical activity barriers of an Iranian university students.

## 2. Methods

This study is part of a larger mixed-design [qualitative-quantitative] research project carried out on the medical and non-medical students of Tehran in the second semester of 2010-2011 academic year. Participants of the study were 100 students from Tehran Army Medical Sciences University, Tehran Medical Sciences University, Allameh Tabatabayi University, University of Tehran, and Islamic Azad University by the convenience sampling method. An attempt was made to select the samples purposefully according to the place of education, different regions of the city, field of study, and education. An open-ended questionnaire and a semi-structured interview was used to collect data.

Interview questions were selected from an exploratory study of the beliefs on (TPB) previously used for family planning in Iran [40]. The questions were designed according to the guidelines of the theory.

The items related to 'physical activity' section were selected from 'the construction of change of changes (TTM)' in order to study the readiness for physical activity, which was previously tested in Iran [41].

In order to analyze the quantitative data, an independent t-test was run (SPSS 15.). Content analysis was used to analyze the qualitative data. To check the reliability of the results, the data was given to colleagues and their ideas were taken into account. An external evaluator checked the material to guarantee maximum validity. A committee of the ethics of Baqiyyat Allah University has approved this study protocol.

## 3. Results

Demographic characteristics of subjects have show in the table 1. According to classification of National Institute of Health (NIH) [42], most of the participants had natural body mass index and 17% of whom were over-weight. Results of independent t-test showed a significant

difference between body mass index of girls and boys ( $p < 0.0001$ ). Also, boys' body mass was found to be higher. Also, in comparison with singles, married participants showed a higher body mass index ( $p < 0.0001$ ). Non-medical majors had a higher body mass index than that of medical majors ( $p < 0.007$ ). There was found no significant difference between those having physical activities and those lacking it in terms of body mass. Only had 30% of students regular body activities for more than 6 months (action step). One of the 20-year old male students noted: "Sport is part of my life. If I don't do it, I feel weak."

**Table 1.** Demographic information of the participants (N=100)

	N	%
<b>Sex</b>		
Male	48	48
Female	52	52
<b>Marital status</b>		
Single	80	80
Married	20	20
<b>Education field</b>		
Medical	48	48
Non-medical	52	52
<b>Accommodation</b>		
Dormitory	35	35
House	55	55
Others	10	10
<b>Body Mass Index (BMI)</b>		
< 18.5	9	9.6
18.5 – 24.9	68	71.7
25 – 29.9	17	16.8
≥ 30	1	1
<b>Positive history of Chronic disease in family</b>		
Yes	29	29
No	71	71

Gender and marital status did not lead to significant difference among those who had regular physical activities. Among those who had physical activities, 32.7% stated that would not plan to stop their activities for the next month (preparation stage), and 38.6% said they would continue their activities for the next 6 months (contemplation stage).

From students' points of view, most important barriers preventing them from doing physical activities include education, lack of a proper place for exercising, lack of time, and fatigue. They mentioned living in apartments as a barrier to doing physical activity.

Girls mentioned education and lack of a proper place for doing exercise as the major barriers. A 19-year old female student noted: "Generally, women encounter a spatial restriction for doing physical activity". However, boys mostly cited education, job, and lack of time as the main hindrance" (Table 2). Other barriers mentioned by males included air pollution, sports club expenditures, and lack of a regular program of physical activity. A 22-year old male said: "Polluted air creates respiratory problems, meaning that its negative effects far outweigh its positive effects."

For female participants of the study difficulty of doing exercise, mismatch between club and dormitory programs menstruation were the main

barriers to doing physical activity. One of the female student told: "Sport is always difficult and impossible for me." Another one stated: "We have to get back to the dormitory before it gets dark, and so I can't join to the club."

**Table 2.** The most important barriers to doing physical activities by sex(N=100)

Perceived barriers	Female		Male	
	N	%	N	%
Univrsity education and exams	16	33.3	16	30.7
Lack of time	12	25	16	30.7
Spatial limitations	16	33.3	9	17.3
Tiredness and moodiness	7	7.4	6	11.5
Limitations from university equipments	4	8.3	8	15.3
Cold air	3	6.2	5	9.6
Occupation	1	2	8	15.3
Readiness of body	2	4.1	1	1.9
Hardness	2	4.1	0	0
Disease	2	4.1	1	1.9
Club-dorm incompatible programs	2	4.1	0	0
Busy mind	0	0	1	1.9
Irregular sport program	0	0	2	3.8
Club cost	0	0	1	1.9
Menstruation	1	2	0	0
Air pollution	0	0	2	3.8
Ceremonies	2	4.1	1	1.9
No comment	7	7.4	8	15.3

N=Numbers

Regarding factors facilitating physical activities, females pointed to friends and peer gatherings, the presence of sports trainers in universities, including physical education modules in the curricula,, solving mental problems of students, and providing special facilities for girls (such as biking).

Most of the participants referred to the positive influence of doing physical activities on health, fitness, happiness and believed that it prevents of chronic diseases. Also, they noted obesity , weakness, listlessness and depression, and aging as the negative outcomes of inactivity . A 23-year old female, for example, noted: "one who does not exercise is sick and body loses its efficiency."

The majority of the participants emphasized the connection between physical activity and cardiovascular diseases such as hypertension. A female participant told: "When I activity, my blood circulation is accelerated and my heart beats more. Thus, the body is ready for more activities and muscles will become stronger."

The regarding desirable kind of food, two cases opted for the food served at universities, one for fast-food, and the other one for restaurants. However, since cooking is a time-consuming process and home-made food is not available , university students cannot eat home food.

The students complained about the low quality of the food served at universities. In addition, they enlisted the low quality of university cafeterias, camphorated and fatty foods, stressful setting of universities, frozen meat, and unsuitable containers, and said that they have to eat whatever their universities offer. For one of the students, breakfast was the least important meal. In two cases, the participants considered eating at expensive restaurants.

Only one student noted that fast-food is harmful to the stomach. In general, the students' attitudes toward fast-food were positive. Even two of their preferred fast food to university food.

Regarding the advantages of healthy foods, 22, 14, 14, and 6 of the participants stated that healthy foods bring about physical health, immunize us immunity against diseases, supply body energy, and guarantee mental health, respectively. Three of the participants stressed that physical activities and nutrition should be considered together. Moreover, the participants insisted on the importance of including a variety of foods, healthy food production, and having a dieting plan, which showed a good level of knowledge about the issue.

Also, the participants referred to the disadvantages eating unhealthy foods and named heart diseases, hypertension, obesity and diabetes, tiredness, weakness, thinness, and early aging

Participants of the study believed that factors such as (ordered based on their frequency and importance)time shortage, attending outside-home environments such as universities, heavy educational schedules, unhealthy food tastes, and exhaustion persuade them to eat unhealthy foods.

Table 3. provided the most important factors preventing participants of the study to have healthy nutrition.

**Table3.** The most important barriers preventing the students from having healthy diet by sex(N=100)

Perceived barriers	Female		Male	
	N	%	N	%
Time shortage	14	29.1	7	13.4
Being far from home	6	12.5	6	11.5
Expenses	5	10.4	5	9.6
Educational conditions	2	4.1	3	5.7
Food taste	7	14.5	2	3.8
Inappropriateness of university-served foods	4	8.3	5	9.6
Force	0	0	5	9.6
Lacking a diet program	0	0	5	9.6
Lacking facilities at universities	2	4.1	2	3.8
Insufficient knowledge	2	4.1	1	1.9
Tiredness and boredom	4	8.3	2	3.8
Being employed	2	4.1	3	5.7
Not caring about health issues	0	0	2	3.8
Misperception about the effects of foods on health	0	0	1	1.9
Living with friends	2	4.1	2	3.8
lack of variety and avoiding repetitive foods	5	10.4	2	3.8
Ready-made and fast-food advertisements	4	8.3	1	1.9
Inappropriate food culture	1	2	0	0
Not caring about receiving vital nutrition	1	2	1	1.9
No comment	2	4.1	1	1.9

#### 4. Discussion

This study investigated the lifestyle of university students in Tehran. Due to time limitations and educational issues, university students turn to fast food, sometimes at the price of eliminating breakfast and lunch meals and little

fruit and vegetable consumption. An According to their BMIs, a number of the students suffered from overweight, which evidence overeating. Thus, the need for weight-losing programs is heavily felt.

Similar to the findings of the study, Cheong reported inappropriate eating habits such as overeating and the elimination of one or two of the main meals among a group of female university students in Korea [43]. Greene studied a group of American university students, and observed overweight and obesity among them [44]. Kiss et al. investigated the nutrition of medical students and their cardiac-respiratory health and showed that respectively 11.3% and 19.95% medical and non-medical students were obese which is different from our study [45].

In the study conducted by Yahia et al. among American students, 37.5% were found to be overweight and obese, which was more than the findings of our study [46]. However, Moayeri studied Iranian teenagers and found that 17% and 7% of the participants were overweight and obese, respectively. The findings of the study are similar to those reported in the present study [47]. Perhaps, we would have found different results if we had included larger samples. Other studies such as the Internet-based one carried out by Kolodinsky [48] and Larson's one [49] also emphasizes the existence of unhealthy eating habits and little physical activities among students.

The level of physical activity among the students was low and they admitted that it was a difficult and time-taking process, though they showed a passion for playing sports. In some cases there were misconceptions such as the effect of exercise on menstruation among girls. In fact, self-efficacy of physical activity was low in the studied sample. In the study of Dishman *et al.* self-efficacy was shown to have a direct relationship with physical activities and an indirect one with perceived social support [50]. In another study conducted at the Istanbul University, self-efficacy was mentioned as the most important element in healthy lifestyle planning [51]. Peers had an important role in encouraging physical activities and exercising, as reported by Heitzler finding that youth physical activities were directly related to peers' support, parents' physical activities and barriers [52].

Students of the university in Egypt [53] also mentioned inaccessibility or limited access to sport pitches and suitable areas as the barrier factors. Seen from this perspective, the findings of the study are similar to ours the students spoke of similar spectacles.

Similar to the findings of our study, Kelishadi reported time limitations and the time spent on watching TV and playing computer games were major barriers factors preventing teenagers doing physical activity and playing sports [54]. In the present study, most of the students had no physical activities and were in Precontemplation or Contemplation stages of change of behaviors phases.

According to the WHO, 60 % of the individuals' health and life quality is accounted for by their behaviors and lifestyle [55]. Living in academic settings and preparing for exams which triggers stress reduce nutrition pattern and physical activities as two factors related to life quality. Therefore, there must be social- and university-based interventions in order to promote lifestyle-promoting programs should be social- and university-based. Also university authorities should provide students

with an environment which provide enough facilities for physical activity as well as a rich nutrition program which include fruits, vegetables, and dairy. Planning comprehensive interventions in order to obviate the barriers to a healthy lifestyle is also recommended.

## 5. Conclusion

The result of the study emphasized the importance of social barriers of healthy nutrition and physical activity. As well as, knowledge not related to healthy behaviors. It is recommended that researchers investigate the risk-indicators of unhealthy diets and poor physical activity among students and establish predictive measures.

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