

علاقة المستوى المعرفي والثقافي بالعوادات الصحية والغذائية
والنشاط البدني لطلبة قسم التربية البدنية والرياضة في دولة الكويت

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ملخص البحث

تهدف الدراسة إلى تحديد المستوى المعرفي والثقافي لطلبة قسم التربية البدنية والرياضة في دولة الكويت من حيث العادات الصحية كالتدخين والنشاط البدني - كمزاولة الرياضة اليومية وأيضاً السلوك والاستهلاك الغذائي، تظهر أهمية هذه الدراسة للتعرف على مدى نجاح البرامج والمناهج الصحية في المقررات النظرية والعملية ومدى تطبيقها وعلى مجالات التعاون بين الجهات الحكومية لتطبيق قانون منع التدخين ومدى معرفة الطلبة بالمواد الغذائية ومحتوياتها والتي قد تساعدهم في التعرف على عوامل الإصابة بأمراض القلب والجهاز الدوري . وقد استخدم المنهج الوصفي لملائمته طبيعة الدراسة . اشتملت عينة الدراسة على (٢٣٢) طالباً تم اختيارهم عشوائياً من قسم التربية البدنية والرياضة التابع لكلية التربية الأساسية بدولة الكويت، حيث بلغ متوسط العمر الزمني ١٨,٩ - ٣٥ سنة وقد استخدم استبيان مكون من ٣٠ فقرة موزعة على ثلاثة مجالات وهي : مجال التدخين ومجال الاستهلاك والعادات الغذائية ومجال النشاط البدني واستخدم أيضاً برنامج خاص لتحليل المواد الغذائية بعد تدوينها على نموذج ولمدة ثلاثة أيام متتالية، وبعد جمع البيانات واستخدام البرنامج الإحصائي SPSS للتعرف على المتوسطات الحسابية والانحرافات المعيارية والنسب المئوية وقيمة كرونباخ ألفا واختبار (ت - t) .

وقد أظهرت نتائج الدراسة أن النسبة المئوية للمدخنين ٤٦,٤% والنسبة المئوية لعدد المدخنين السلبيين هي ٩٧,٢%، وأن ٣٢,٣% من الطلبة مشتركين في الأندية الرياضية وأن ٦٤,١% يزاولون الأنشطة الترويحية فقط ٣,٦% لا يزاولون أي نشاط بدني . والنسبة المئوية للطلبة المدخنين الذين لا يتناولون وجبة

الإفطار ٤٥,٢%, أما من ناحية الاستهلاك الغذائي والعادات الغذائية فتوجد فروق ذات دلالات إحصائية على تناول الطلبة لسعرات حرارية أكثر من احتياجاتهم اليومية وارتفاع في تناول الدهون وخاصة المواد الغذائية الغنية بالدهون المشبعة والبروتينات والكوليسترول ونقص في تناول الكربوهيدرات والألياف الغذائية بالمقارنة مع الحصص اليومية المقررة للطلبة في الولايات المتحدة الأمريكية. ويمكن من خلال هذه الدراسة التعرف على العادات والسلوكيات الصحية والغذائية والتي يمكن من خلالها تطوير وتقنين المناهج والمقررات التعليمية لتخدم الطلبة والعمل على تحسين العلاقة بين الجهات الحكومية وإدارة الكلية بتطبيق قانون منع التدخين وتشجيع الطلبة على مزاولة الرياضة اليومية وتناول الغذاء الصحي المتوازن والامتناع عن التدخين بأنواعه .

Prevalence of Health Behaviors and Dietary Patterns among Physical Education Students of Kuwait

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INTRODUCTION:

Health hazards may be categorized by lack of physical activity, high consumption of fat and high caloric food intake, smoking, negative nutritional habits such as skipping meals especially breakfast and different meal timing.

Tobacco smoking is a major health hazard and is the most preventable cause of death in many countries. According to the World Health Organization (WHO) ⁽¹⁾, 30% of the world's population are smokers, resulting in a potential market of more than 1.2 billion smokers. More than 4000 chemical compounds have been identified in tobacco and tobacco smoke. Many of these chemicals are toxic and carcinogenic. Tobacco smoke in enclosed spaces is breathed in by every one, exposing smokers and non-smokers alike to its harmful effects. The exposure to these chemicals are referred to as involuntary smoking or passive smoking. Passive smokers absorb nicotine and other compounds just like smokers ⁽³⁾. Smoking and passive smoking are associated with various types of cancers and other diseases ⁽²⁻⁹⁾. Smoking is responsible for 12% of all Disability Adjusted

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Life Year (DALY) in developed countries. In 1990, the percent of DALY's for high-risk behavior such as smoking, alcohol and unsafe sex was 10.2%. Smoking is accountable for 25.7% of all deaths ⁽¹⁰⁾.

It is estimated there are 1.1 billion smokers of which 300 million are in developed countries and 800 million are in developing countries. In the early 1990's the estimated smoking prevalence for men over 15 years of age in developed countries was 48% ⁽¹¹⁾. These health behaviors have been linked to many diseases and obesity in most western populations. However, prevalence of physical inactivity, health beliefs, and unbalance diet consumption has rarely been assessed across a wide range of developed and developing countries.

In the State of Kuwait, greater than 39% of all the population smoke as well as 50% of high school students are smokers ⁽¹²⁾. Also, a high percentage of passive smokers was reported which is mainly due to the specific social life style, in particular attending daily "Dywanian". The statistics for mortality and morbidity in developing countries have not yet been established due to the lack of governmental data on smoking people and passive smokers. Therefore, tobacco smoking will be a major health hazard in the next century ⁽¹²⁻¹⁴⁾.

The majority of the students in the Physical Education Department are athletes who perform physical activities

throughout the department curriculum and participate in various sport clubs. Students need to consume a balanced diet to provide adequate energy for body functions and to supply enough energy for physical activities. Several studies showed that the students did not consume adequate diet and that may effect their physical and mental activities thought the day ⁽¹⁵⁻¹⁸⁾. Unfortunately, the American Recommended Daily Allowance (RDA) did not include athletes in their recommendations.

Numerous studies reported a high correlation between diet consumption and cardiovascular diseases especially high saturated fat and cholesterol intakes and low dietary fiber in the high school population ⁽¹⁹⁻²⁰⁾ and in the general population ⁽²¹⁻²⁵⁾.

There is a lack of information regarding health hazards for physical education students in the State of Kuwait. Therefore, the purpose of the present study was to obtain information about smoking, diet consumption and health habits of the physical education students in the State of Kuwait.

METHODS:

Subjects and Procedures

Two hundred thirty two male students (67.05%) from a total of 346 students enrolled in the Physical Education Department at the Basic College of Education in the State of

Kuwait for the year 2007-2008 were selected as subjects in the present study. One hundred and fourteen students were omitted for the following reasons; did not continue the survey, did not complete the three days dietary recall or they were not available in the study period. To test the reliability, the internal consistency of the questionnaire was presented and then reviewed by several expertise professors. The questionnaire was approved and then Cronbach's alpha coefficient was used and alpha equal to or greater than 0.70 was considered satisfactory.

The mean age was 22.7 ± 2.5 years. The weight and height of all subjects were measured using a medical scale (Detecto's ProHealth 6129 medical scale with height measurement rod). A self-administered questionnaire was distributed during the final exams of the first semester 2008. All subjects answered the questions which were collected by the researcher after completion. The anonymous questionnaire collected information on personal characteristics consisting of questions regarding smoking behaviors (age at which smoking started, numbers of cigarettes per day, smoking while at college campus and any effort for quitting and if they are second hand smokers), exercise (part of sporting club (competitive), recreational, sedentary life style) and eating habits (skipping certain meals and the time of meals). In addition, the three days dietary recall was conducted to estimate the total daily caloric consumption,

macronutrients and micronutrients intake. The students recorded food and fluid intake in household measures, including brand names, type of cooking and weight of items consumed. Students were encouraged to be very specific and accurate as much as possible in recording food consumption. In addition, the household measurements were demonstrated to all students to insure the accuracy of recording. The three days dietary recall is the most popular and easiest method for obtaining a person's dietary intake. It is also a very useful technique in providing the clinician with qualitative information about the individual's diet. However, few limitations should be considered such as difficulty recalling the food, the amount eaten and dishonesty in recording the data⁽²⁶⁾. After completion of the records, all data were entered in the computer (Microsoft Windows 2000) and with the software program (DINE Systems, Inc. 2009, DINE healthy 7, Whiteville, North Carolina), the caloric, macronutrients and micronutrients intake values were analyzed in percentages and grams.

Data Analysis:

All the statistical computations were performed using the Statistical Package for the Social Sciences (SPSSx Inc. Chicago, IL). Descriptive statistics are presented as means \pm standard deviations for all measurements. Two single sample *t*-tests were applied to examine any significant differences between the mean values of the caloric intake, macronutrients

by weight and percentages (Table 5 and 6) and micronutrients intake by weight (Table 7) of all subjects with the normal values in the American Recommended Daily Allowances (RDA). It is important to mention that the RDA did not consider the athletes when food consumption was recommended. A *P*-value lower than or equal to 0.05 was accepted as statistically significant.

RESULTS, DISCUSSION:

A total of two hundred thirty two male students enrolled in the Physical Education Department at the Basic College of Education in the State of Kuwait for the year 2007-2008 were selected as subjects in the present study.

Table 1.
Participants' personal characteristics

Variables	Values
Age	18.9- 35 years
Mean Age	22.7±2.5 years
Mean Body Mass	71±2.2 Kg
Mean Height	172±5.1 cm
Body Mass Index	23.9

Table 1 shows the age of students ranged from 18.9 to 35 years, with a mean of 22.7±2.5 years and the mean body mass was 71±2.2Kg, height 172±5.1cm with Body Mass Index of 23.9 which is in the normal weight category.

Table 2
Characteristic of smoking habits of students Numbers (No) and (Percentages) (%).

Variables	No (percentages)
Smokers	(107) 46.12%
Second hand smokers	(219) 94.4%
Age at which smoking started	17±3 years
Numbers of cigarettes per day	25±7/day
Smoking while at campus	(104) 97.2%
Smokers tried quitting	(21) 9.05%

Table 2 shows the prevalence of smoking among physical education students was (46.12%) of all students. The smokers smoked an average of 25±7 cigarettes per day and (94.4%) of all students were passive smokers. The average age of beginning smoking was 17±3 years. Table 2 also shows that a high percentage of students smoke while at campus (97.2%) and only (9.05%) of the smokers tried to quit.

Table 3
Characteristic of Physical activities of students No. (Percentages) competitive, recreational activities and sedentary life style.

Variables	No (%)
Competitive Students	73.6 (32.3%)
Recreational Students	146.1 (64.1%)
Students with No activity	8.3 (3.6%)

Table 3. Shows a total of 228 (96.4%) of all students engaged in physical activity with an average of 1.6 ± 0.5 hours of exercise per day and an average of 4.2 ± 1.5 days per week. Also, all students who exercised daily, were further divided into the competitive level of exercise 73.6 (32.3%), students who participated in recreational activities 146.1 (64.1%) and student who did not engage in any level of activities 8.3 (3.6%).

Table 4
Patterns of eating habits of smokers no. (Percentages).

Variables	No (Percentages)
Smokers Skipping Breakfast	(176) 77.2%
Smokers Skipping Lunch	(2) .9%
Smokers Skipping Dinner	(31) 13.8%

Table 4. Illustrates some of the eating habits, for example approximately 176 (77.2%), 2 (.9%) and 31 (13.8%) of smokers skipped breakfast, lunch and dinner, respectively. Meals were consumed at the following times 8 am, 2 pm and 10 pm for breakfast, lunch and dinner, respectively. Skipping breakfast was noted as an unhealthy pattern for students since they spend most of the day in physical activities required by the department curriculum. Also, the timing of the dinner meal was late (10 pm), which may have a negative effect on body weight in terms of digestion and metabolism.

Table 5
Mean caloric intake and the percentages of carbohydrates, fat,
and protein for all Physical Education (P.E.) Students
(N=232 (mean±SD))

Variables	P.E. Students	U.S. RDA Values
Calorie per day (kcal-day-1)	3490±750*	2700-3000
Carbohydrate (%)	44%*	55%
Fat (%)	43%*	30%
Protein (%)	19%*	15%

* ($P \leq 0.05$) significant differences between students diet consumption and RDA values by using SPSS program.

The results in Table 5 illustrate daily diet analysis based on the three days dietary recall method for caloric and macronutrients intake in comparison to the recommended values reported by the American Recommended Daily Allowance (RDA). According to the RDA recommendations, the caloric consumption should be between 2700-3000 kcal-day. All Students had significantly greater ($P \leq 0.05$) caloric consumption per day 3490±750. The students had significantly higher ($P \leq 0.05$) percentage dietary intake for fat (43%) and protein (19%) from the total daily caloric intake. In addition, students had significantly lower percentage of carbohydrate consumption (44%) in comparison with American RDA values.

Table 6

Composition of diet and mean macronutrients intake by weight for Physical Education (P.E.) Students (N=232) (mean±SD)

Variables	P.E. Students	U.S. RDA Values
Carbohydrate (g)	382±96*	426g (6g/kg body mass/day)
Fat (g)	166±55*	142g (2g/kg body mass/day)
Saturated Fat (%)	37±9*	10%
Protein (g)	118±36*	56,8g (.8g/kg body mass/day)
Cholesterol (mg)	404±104*	300 mg
Dietary Fiber (g)	20±4*	30g

* ($P \leq 0.05$) significant differences between students diet consumption and RDA values by using SPSS program.

In order to determine and compare the daily intake values for carbohydrates, fat and protein, the body mass was multiplied according to what the RDA recommended by 6g, 2g, and .8g, respectively. The average body mass of students was 71 ± 2.2 kg. The students had significantly higher ($P < 0.05$) fat (166g), protein (118g) and percent saturated fat (37%) consumption than the values recommended by the American RDA for the same weight category.

Also, there were significant differences ($P < 0.05$) for consumption of food high in cholesterol 404 ± 104 mg for students in comparison with the normal value of (300mg) recommended by the American RDA. Furthermore, students were statistically different in dietary fiber consumption (20 ± 4 g) in comparison with the value of (30g) recommended by the American RDA.

Table 7
Composition of mean micronutrients intake for Physical Education Students (N=232) (mean \pm SD)

Variables	P.E. Students	U.S. RDA Values
Iron (mg)	8.9 \pm 3.1*	10 (mg)
Calcium (mg)	590 \pm 280*	800 (mg)
Phosphorus (mg)	905 \pm 281*	800 (mg)
Sodium (mg)	2022 \pm 660*	1200 (mg)

* ($P \leq 0.05$) significant differences between students diet consumption and RDA values.

Table 7 illustrates that there were significant differences ($P \leq 0.05$) for iron 22.1 \pm 5.8mg, calcium (590 \pm 280mg), phosphorus 905 \pm 281mg and sodium intake 2022 \pm 660mg for students in comparison with normal RDA values of iron 10mg, calcium 800mg, phosphorus 800mg and sodium 1200mg, respectively.

The students in the physical education department had several health hazards that may have severe consequences in the future. These negative behaviors could put Kuwaiti college students at increased risk for immediate and long-term health problems. The high percentage of smokers and passive smokers among students suggest that a major epidemic of tobacco related diseases can be expected when those students become older.

In addition, high percentages of passive smokers need to be addressed seriously to find the causes, solutions and enforcement measures for presentation.

Tobacco smoking and unhealthy diet pattern established during youth may be extend into late life and may increase risk of CVD, cancer and other diseases⁽²⁷⁻²⁹⁾. In 1997, Kann et al⁽³⁰⁾ conducted a national school-based survey that revealed 36.4% of high school students were smokers, 70.7% had an inappropriate diet and 72.6% were physically inactive. Dappen et al⁽³¹⁾ reported 65% of high school students in the state of Virginia were smokers. Saeed et al⁽³²⁾ found 22% of secondary health students in Saudi Arabia were smokers. In the United Kingdom, two studies⁽³³⁻³⁴⁾ reported the smoking rate of 43% and 39% of student nurses and UK university students, respectively. In Japan, the percentage of smokers reached 46% among senior high school students. Hussain et al,⁽³⁵⁾ reported 11% of medical students in Pakistan were smokers.

In addition, a survey conducted by Assanelli et al⁽³⁶⁾ for athletes and students (non athletes) in northern Italy demonstrated a total of 23.3% and 30.9% were smokers, respectively. Even when an anti-smoking policy was introduced to the campus, a study by Fiore et al⁽³⁷⁾ showed 33% of the Wisconsin-Madison students were smokers. Centers for Disease Control (CDC)⁽³⁸⁾ reported 42.7% of American high school students were smokers. Also, the CDC stated in the Global Status Report that in 1991 there was 52% smokers in Kuwait and there is no future decline in this pattern. In spite of the State of Kuwait law number 15 of 1995 on smoking control, there is

no governmental enforcement what so ever. All previous studies were compared to the results of the present study and it may be noted that smoking in Kuwait is especially high for passive smokers which may have devastating outcomes and consequences on future health.

Several studies have shown that physical inactivity has been linked with many diseases and obesity in college students in the USA, and many other countries⁽³⁹⁻⁴¹⁾.

In addition, when the American Recommended Daily Allowance (RDA) values were compared with the current subject's food values, high fat content diet and low dietary fiber intake was recorded. The high fat content diet and low dietary fiber intake is associated with unhealthy eating habits which may increase the risk of CVD and obesity⁽⁴²⁾. The high cholesterol consumption $404\pm 104\text{mg}$ and high percentage of saturated fat (37.9%) are associated with an increased risk of coronary heart disease (CVD). It should be noted that percentages recommended by RDA for fat and fiber consumption is the same for athletes and non-athletes.

It should be noted that high consumption of calories is associated with many diseases such as CVD and diabetes⁽⁴³⁾.

The students had higher fat, protein and less carbohydrate consumption than the values recommended by the American RDA. This could have a major consequence in their overall health and possibility of heart related problems. It is well

documented that carbohydrate consumption provides the necessary energy to all body systems and since the students are very active throughout the day, they need the adequate amount of carbohydrates⁽⁴⁴⁾.

The results of the survey also demonstrate a clear need for an anti-smoking cessation program in the physical education department of Kuwait. Furthermore, there were sufficient data to alert the Ministry of Education and government officials about the health hazards among overall students in Kuwait. Increased effort from governmental and non governmental agencies such as the Ministry of Education, Ministry of Public Health and Kuwait society for Cancer and Smoking Prevention are needed to aid the students to overcome smoking and unhealthy eating habits.

Physical education students should be a role model for other students and parents since they in turn will teach in future elementary and secondary schools. More nutrition curriculums are required to educate students about the effects of good healthy habits, balanced and sound diets in their life. Identification of the different health behaviors and hazards may also help to emphasis various methods in solving the problem and the need for anti-smoking education programs. Unfortunately, the college administration dose not enforce the government's non-smoking policy.

Conclusion :

The researcher suggests the following in accordance with the CDC guidelines of health programs ⁽⁴⁵⁾;

١. Engage the ministry of health and education officials, teachers, students, parents and community in effort to ensure healthier and smoke free environments for schools.
٢. Implementation of policies and taking measures that encourage better health habits.
٣. Improve and update department health curriculum.
٤. Construct and implement new courses with emphasis on cardiovascular risk factors and physical fitness.
٥. Implementation of anti-smoking law signed in 1995 by the general assembly and then the government.
٦. Joined effort by governmental and non-governmental organizations to enforce the anti-smoking law and to educate people about health hazards.
٧. Smoking cessation programs should be introduced among Kuwaiti students to reduce the number of smokers and second hand smokers.
٨. Raise awareness of the problems associated with cardiovascular disease.
٩. Create an environment that supports and maintains health promotion behavior in the campus.

١٠. Stimulate community efforts to address risk factors, prevalence and disease prevention by using the media such as television and newspapers.
١١. Develop, implement, and evaluate a tobacco-control program and make changes where are necessary.

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