



Physical Activity Levels, Swimming Ability, and Smoking Status among Kuwaiti Physical Education College Students

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Abstract

Introduction: Swimming is becoming increasingly popular in Kuwait. Relationships with teachers, especially physical education (PE) teachers whether positive or negative, influences cigarette use among young people. Despite the public health concerns, comprehensive lifestyle data of Kuwaiti college age students, including physical activity and smoking habits, is lacking. **Purpose:** The purpose of this study was to determine the physical activity (PA) levels, swimming ability, and smoking status among Kuwaiti male and female physical education colleges students. **Methods:** A cross-sectional study was conducted on 418 randomly selected college students (198 males and 220 females) aged 18-25 years from the College of Basic Education during the 2017 - 2018 academic year. Physical activity levels were assessed using the Arab Teen Lifestyle Study (ATLS) questionnaire. Swimming ability and smoking status were assessed using the Godin questionnaire. Anthropometric measurements included weight (kg) and height (cm). Body fat (%) and lean muscle mass (kg) were determined with bioelectrical impedance analysis. Body mass index (BMI) was calculated using height and weight (kg/m²). **Statistics:** Independent t-tests were used to detect significant differences between the mean values of male and female subjects. **Results:** Male subjects had more muscle mass (39.1±4 kg vs. 25±4 kg) and were more physically active compared with females (645±40 vs. 443±56 min/week) ($p<0.05$). Body fat was greater in females (32±7%) compared with males (21±10%) ($p<0.05$). Both groups had similar BMI values (23.7±4 kg/m² and 23.1±3 kg/m² in males and females, respectively). Smoking prevalence was 45% in males and 7% in females. Three percent of males and 20% of females did not know how to swim. **Conclusion:** Male PE students report greater physical activity levels than female students; however, they have a higher prevalence of smoking which might affect children and adolescent students and increase the prevalence in the Kuwaiti society. For this reason, there is an urgent need for the Ministry of Education to provide smoking cessation clinics.

Keywords: Swimming ability, lifestyle, smoking, Kuwait.

Introduction:

Chronic diseases, including cardiovascular disease (CVD), diabetes mellitus type 2, obesity, cancer, and Alzheimer's Disease are spreading rapidly worldwide, especially in Kuwait (1, 2). Indeed, Kuwait ranks second in obesity worldwide and first in the Middle East for type 2 diabetes (3, 4). Smoking and physical activity (5) are primary risk factors for chronic diseases and assessing these factors in Kuwaiti society is critical for prevention and treatment.

According to the World Health Organization, tobacco ranks as the most widely used addictive substance worldwide and one of the leading causes of death (6). Tobacco use most commonly starts and establishes during the adolescent period (7). Among young people, the health

consequences of smoking are exacerbated as those who begin smoking at a young age tend to continue smoking throughout adulthood. Additionally, young people who smoke are more likely to consume alcohol and use marijuana or other drugs (7).

Several factors influence students' cigarette use. Relationships with teachers (positive or negative), especially physical education (PE) teachers, influence cigarette use among young people (6, 8). Students who view their teachers as role models said teachers are able to discourage students from indulging in drug abuse. Since students spend much of their time in school, those with supportive teacher relationships are less likely to use drugs (8). However, students with dysfunctional teacher relationships are less likely to recognize the dangers and threats of substance use (8). Young people are more likely

to adopt tobacco consumption if they believe that it will lead to acceptance or normalization from their teachers and peers (7). However, conscientious and empathetic teachers can correct student misconceptions towards substance use.

Drowning kills more than 300,000 persons worldwide every year (9). Strategies to prevent these death depend upon characteristics of the victim, such as age, and the specific circumstances surrounding the event, which may vary by country. One strategy is lifeguards but unfortunately it is hard for lifeguards to cover all bodies of water at all the times (10). Swimming officially started in the Olympic games in 1896 and has become increasingly popular since then, including in Kuwait.

Physical education students have the potential to play an important role in Kuwaiti society as only one physical education department in Kuwait exists. Therefore, as future educators it is important to monitor lifestyle related habits and smoking status among PE students in Kuwait. To the best of our knowledge, recent and comprehensive lifestyle data of Kuwaiti physical education college age students is lacking. Therefore, the overall goal of the present study was to determine the prevalence of physical activity levels, swimming ability and smoking status among Kuwaiti male and female physical education colleges students. By determining the prevalence of physical activity levels, swimming ability and smoking status in PE students it will allow targeted interventions that can have a positive public health impact on children thereby preventing CVD/obesity health issues in Kuwait.

Methods:

Participants

A total of 418 males and females between 18-25 years old (198 males; and 220 females) were randomly selected from college students in the Department of Physical Education & Sports at the Public Authority for Applied Education and Training during the 2017-2018 academic year. This sample size represents 25% of the entire student population. Written informed consent was obtained prior to subject participation. The study was approved by the Public Authority for Applied Education and Training.

Measures:

Questionnaire:

Participants completed a validated self-reported questionnaire (The Arab Teen Lifestyle Study) developed

by Al-Hazzaa, et al. (2011) (11). The questionnaire is comprised of three parts: Physical activity levels, sedentary behaviors and dietary habits. Participants were asked to respond to items regarding their feelings and experiences. Prior to administering the questionnaire, subjects received a detailed explanation as to the purpose, importance, and confidentiality of the questionnaire. During a visit to our laboratory subjects completed the questionnaire in private and submitted the finished document directly to the investigator. Participation by students was voluntary and required the completion of questionnaires after data collection.

Physical Activity Levels and sleeping hours:

Physical activity (PA) levels and the number of sleeping hours per day (night and day) were assessed using a self-report questionnaire (ATLS) (11). The ATLS collects information on type, timing, frequency, and intensity of PA during a typical week. PA was classified into three categories of intensity: moderate, and vigorous intensity based on metabolic equivalent (MET) (12, 13). In addition to ATLS, measurements of smoking status and Self-Reported swimming ability (whether the respondent knew how to swim) were performed using the Godin questionnaire (14).

Body Mass and Composition:

Height (cm) and body mass (kg) were measured with a physicians' balance scale. Participants' body mass was measured while barefoot and in light clothing. Body mass index (BMI) was calculated using the equation: mass (kg) / height squared (m²). Body fat (%), and lean tissue mass (kg) were determined noninvasively using a Tanita Body Composition Analyzer (BC-1000 Madison, WI).

Statistical analysis:

Independent t-tests were used to detect significant differences between the mean values of male and female students. using SPSS Version 22.0 (SPSS Inc.). Statistical significance was set at $p < 0.05$ for all analyses. Data are presented as mean \pm standard deviation (SD) unless otherwise stated.

Results:

Subject Characteristics

Male and female groups were not different in age (20 ± 2 vs 21 ± 2 yr). Mean weight and height were different between groups, but BMI (23 ± 4 vs 23 ± 10 kg/m²) was not. Males had more muscle mass (39 ± 4 vs 25 ± 4 kg) and lower

percent body fat (21.6±10 vs 32±7 %) compared with females (See Table 1).

Physical Activity Levels, Smoking Status, and Swimming Ability

Males spent more total time in vigorous-intensity PA ($p < 0.05$) compared with females (131±160 vs 27±58 min/week), but there were no differences in total time

spent in moderate- intensity PA (68±97 vs 56±100 min/week) between groups (See Table 2). Forty-five percent of males were smokers and 7% of females were smokers (Figure 1). Of the participants, 20% of females reported not knowing how to swim, but only 3% of male students did not know how to swim (Figure 2). The mean sleep duration of physical education students was 7±1 h/day and 7± 2 h/day for male and female students, respectively.

Table (1)
Descriptive Characteristics of the Participants

| Variables | Male | Female |
|------------------|---------|---------|
| N | 198 | 222 |
| Age | 20±2 | 21±2 |
| Weight (kg) | 71±16 | 59±33 * |
| Height (cm) | 172±7 | 159±4 * |
| BMI (kg/m2) | 23±4 | 23±3 |
| Body Fat % | 21.6±10 | 32±7 * |
| Muscle mass (kg) | 39±4 | 25±4 * |

Data are means and SD. Independent T-test; *Significant difference at $P < 0.05$

Table (2)
Time (minutes/week) Spent by Kuwaiti College Age Students in Moderate Intensity Exercise, Vigorous Intensity Exercise, and Sleep

| Variables | Male | Female |
|-------------------------------|---------|--------|
| Moderate Intensity (min/week) | 68±97 | 56±100 |
| Vigorous Intensity (min/week) | 131±160 | 27±58* |
| Sleep (hr/day) | 7±1 | 7±2 |

Data are means and SD. Independent T-test; *Significant difference at $P < 0.05$

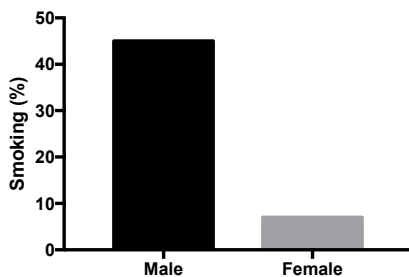


Figure (1)
Smoking status (%) among male and female PE college students

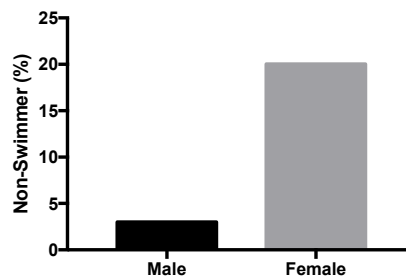


Figure (2)
Self-reported swimming ability (%) among male and female PE college students

Discussion:

The present study assessed the prevalence of physical activity (PA) levels as well as swimming ability and smoking status among Kuwaiti physical education (PE) college students. The findings of the current study show that male physical education students have more muscle mass and are more active than female PE students. Further, 45% of male students and 7% of female students are smokers. In regards to swimming, 20% of female students and 3% of male students do not know how to swim.

Previous studies have demonstrated that physical activity and exercise play an essential role in preventing chronic disease (15, 16). PE teachers have great influence on students' cigarette use and PA level and therefore, potential student health outcomes (17). Additionally, PE teachers can be important mediators of PA outside of school (17). Social support from friends, parents, and PE teachers are significant predictors of self-reported engagement in PA (18). Therefore, colleges and universities should adequately prepare PE teachers to encourage students to participate in exercise and physical activity and educate parents about the importance of exercise. Moreover, increased education and awareness of the health effects of smoking is warranted in Kuwaiti physical education college students. In the current study, PE students demonstrated high level of physically active especially male students which could influence their perception or promotion of PA in their own students in the future.

Drowning is a leading cause of injury-related death in many countries. Our results are consistent with other studies in the U.S. where males reported themselves to be better swimmers than females (ability to swim in deep water 75% vs. 67%) (19). One preventive strategy that may be effective for people of all ages is to promote increased swimming ability through educational programs, swimming and water safety lessons, and drowning awareness campaigns (10). Compared with a poor or non-swimmer, an adept swimmer would be more likely to be able to save his/herself in a drowning situation and rescue drowning victims. Another strategy to improve drowning related deaths is to develop standardized swimming curriculums by local organizations, such as establishing a learn-to-swim program which could be provided by the Kuwait Red Crescent, or increase swimming ability by implementing swimming instruction within school curriculum. Therefore, by increasing swimming ability among PE students especially female students will lead to improving total amount of moderate physical exercise activity and as a results, this will lead to enhance their

health and reduce the incidents of chronic diseases such as CVD, diabetes mellitus type 2, obesity, and cancer.

Due to the cross-sectional study design of our study only PE students from the Physical Education Department at the College of Basic Education were recruited. As student-teacher relationships play an important role in both PA and smoking use of students (3,5), assessing college students throughout the College of Basic Education may provide additional insight into the promotion of PA and healthy behaviors. Further, due to a relatively large sample size, physical activity levels were measured subjectively which could lead to over or underestimation of physical activity.

In conclusion, although male PE students are more physically active, they also have a higher prevalence of smoking compared with female PE students. The current study is consistent with other studies have reported high prevalence of cigarette smoking in the male comparing with female (20). Relationship with teachers has been documented as one of the most important factors influencing cigarette use among young people. PE students will someday teach future kids about health behaviors. For this reason, there is an urgent need for the college of Basic Education and the Ministry of Education should intervene and incorporate more smoking cessation education programs specifically targeted to males. Moreover, awareness about the health benefits of physical activity (PA) should be emphasized to this population. This information should be shared in schools, especially by physical education (PE) teachers because it is their responsibility to teach students the importance of physical activity and healthy lifestyle behaviors this will reduce the rate of obesity, diabetes type 2, and CVD in Kuwait (17). Future studies should investigate the prevalence of physical activity and smoking among other departments in the College of Basic Education.

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