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Research Article

Physical Activities of Young Girls in Jeddah, Saudi Arabia

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Abstract

Background: Physical education classes are non-existent in Saudi girls' curriculum at all educational levels and physical activities are not permitted at public schools. The study aimed to assess physical activities for female students in intermediate and high schools.

Methods: A questionnaire was completed by 1519 participants from 18 schools in Jeddah City. Activities at school and after school were reported. About 63% of the girls preferred to have physical education classes at school.

Results: Girls thought that they were performing (43.2%) enough physical activities and (74%) rated themselves as performing an average level of physical activity in comparison with their peers. Only 32% linked the importance of physical activities to their health. Cars are the main transportation methods to and from school (87 %) and 8% walked to school. Some physical activities (59.2%) are performed at school [walking during break times (42%) or running (5.2%)]. Only 40% were involved in light activities after school while 54% participated in washing up or cleaning the house. Other activities outside school, e.g. walking, shopping, bowling, horse riding and table tennis was reported by 48% of the participants. Moderate activities such as swimming, cycling, dancing, or competitive running was reported by 70% of the respondents. Only 13% joining fitness centres.

Conclusion: Results emphasized the central role and obligation of decision makers in protecting young consumers through providing a healthy environment in schools.

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1. Background

Previous research concerning the health of school children and youth aged 5–17 years conventionally concentrated on physical activity and exercise, with the evidence supporting the importance of meeting physical activity guidelines of 60 min of MVPA (moderate-to-vigorous physical activity) per day (Carson et al., 2016). Sedentary behaviour, where energy expenditure is ≤1.5 METs (metabolic equivalent), is currently

a behaviour of particular importance [18]. Studies and reviews including Saudi [2] have abridged the benefits of regular physical activity on several health and behavioural outcomes of adolescents, and its potential for reducing the incidence of chronic diseases that are manifested in adulthood. In addition, risk factors associated with cardiovascular diseases in adolescence that includes overweight status, hypertension, increased blood lipids, and cholesterol are linked to physical inactivity [9]. Saudi children and adolescents (71%) do not meet the minimal weekly requirement of moderate to vigorous physical activity necessary for an effectively functioning cardiorespiratory system [3]. In Saudi Arabia television viewing, videos, and computer games were the factors which contributed most to the inactivity epidemic. Females are less involved in sports, exercise, and physical activity than boys [3, 11]. In Saudi Arabia, physical activities are not permitted at public schools for girls at all educational levels [5]. Physical education classes are also not fully considered in Saudi curriculum for girls [14], as these activities are still considered contrary to cultural and social norms and beliefs. Saudi girls infrequently use walking as a method of transportation to and from school, and many leisure activities, which are sedentary, including television (TV) and computer are used by teen girls after school (Aljaaly, 2012). Saudi girls have access to health and nutrition information through media, mainly TV (Taha, 2008). Despite the absence of sporting activities at schools for Saudi girls, health fitness centres are designed especially for females are available in most Saudi cities, and swimming pools exist inside some homes, particularly for wealthy families. Outdoor activities, such as, walking is prevalent, and many suitable and private places for out-of-doors activities were developed by the government in the last decade to encourage this behaviour. Jeddah is a waterfront city with a long (40 kilometres) coastline, which provides a perfect setting for outdoor activities (water and non-water oriented activities), although the hot and humid climate of Jeddah during most time of the year encourages individuals to participate in indoor rather than open-air activities. In the Saudi society it is still slightly banned for women to engage in many sporting and recreation activities [1]. In Saudi Arabia, women are required to wear "Abaya", which is the dress code for Saudi women and could limit outdoor activities or available options with respect to sport and recreation. This study aimed to assess physical activities for Saudi female students in intermediate and high schools. Associations with outcome measures such as weight status and waist circumference (WC) of participants with the concern and the practice of physical activities was also assessed and objectives were developed to identify associations between physical activities and nutritional status (based on weight categories and WC).

2. Methods

The study is part of a large cross-sectional survey that was conducted in 1519, participants aged 13 to 18-years-old. Eighteen schools were included in the study, aimed to assess the nutritional status of adolescents' girls. Detailed methods were previously published [7]. The present paper aimed to assess physical activities for female students in intermediate and high schools and explained with two objectives: to identify associations of participants' physical activities with weight categories (using the WHO 1995 guidelines for BMI classification by age and gender, which was stratified into two risk-based BMI categories (underweight and overweight) and WC at ≥ 75th percentile, according to Fernandez et al. in 2004 [6]. A questionnaire concerning perceptions and performance of physical activities was completed by participants and measures were derived from the self-completed questionnaires. Surveys were based on participants' observation and evaluation of their own activity levels. Activities included those done at different times in the day either at school, after school, at home, or in girls' free times (Var. 1-15) in Table 1. Information was collected using the guidelines of GPAQ [17], with modifications. Data on physical activities were designed, grouped and collected based on physical activity participation in three settings (or domains) as well as sedentary behaviours. The domains were activities at school (travels to and from school and apart from school), recreational activity which included activity performed after school, at home, or away from home (indoor or outdoor). Other survey data included sleep habits, a different types of physical activities and whether the student was involved in exercises, outdoor exercises or those at fitness centres or in their leisure times. Some of the activities were evaluated according to daily performances while others on weekly basis. Physical activity was divided into three levels: 1) Sedentary behaviours (sittings or reclining after school or at home). 2) Very light (activities those which require a lowest energy expenditure such as sleeping hours. 3) Very low energy activities such as television watching or playing on computer. 4) Light, moderate or hard activities (activities on a range of prompted activities that were known to require light, moderate, high or very high levels of energy expenditure). The grouping and classification of activity levels used was based on the 1997 UK Survey for young people with modification [15]. But, activities in this survey could be reported by girls as 'were occasionally performed' and not as 'being done regularly'. The Research Ethics Committee of at King Abdul-Aziz University reviewed the study protocol and granted approval. Permission to administer this survey at schools for girls was granted by School Health Department at Ministry of Education in Saudi Arabia. Information letters and consent forms were provided to students and their parents beforehand collecting data. This was in order to define the number of students with parental

consents. Students who returned their letters completed and signed included in the survey. Mean, SD and percentages and chi square (at a significant levels of $p < 0.05$) were the statistical analyses used.

3. Results

The study confirmed that cars are the main transportation methods to and from school as (87 %) and 8% walked to school. Adolescent girls reported performing some physical activities (59.2%) at school. Schools' activities were reported as of walking during break times (42%) or running (5.2%) and the rest of students (12%) reported performance of both activities. Sedentary activities such as sitting down, eating and talking to their friends during school breaks were reported by 41%. Only 40% of girls were involved in light activities after school, e.g. food preparations while 54% participated in washing up or cleaning the house. Other activities outside school, e.g. walking, shopping, bowling, horse riding and table tennis was reported by 48% of the participants. Moderate activities such as swimming, cycling, dancing, or competitive running as jogging was reported by 70% of the respondents and 80% of these activities were more likely to be performed two times or more per week. Thirteen-percent of the participants afforded to join fitness centres to perform exercises and physical activities 'as it was not affordable for most of the girls for the high cost', which was mostly performed once a week. Participants reported concerns related to physical activities. For example, a high proportion (74%) of Jeddah girls thought that they were more active in comparison to peers and friends. About 63% of Saudi adolescent girls preferred to have physical education classes at school. Commonly, they reflected the same levels of physical activities in holidays, in comparison to school days, and (43.2%) of the participants considered they perform enough exercise to keep them healthy. Only 32% linked the importance of physical activities to their health.

Looking at the weight categories for the same population [7] (Figure 1), and when associating data with participants' performance and perceptions about physical activities, we found some differences in girls' weight status according to girls' perceptions of physical activity patterns, however no significant associations was found. This concerned all other association between weight status and different types of physical activities. The overweight girls were also more likely to consider their levels of physical activity as an average in comparison to others in the same age, compared to underweight girls. Sedentary behaviours (reading and use of other media sources) were not associated with any particular weight status.

The survey findings suggested that waist circumference measurements were also significantly associated with girls' physical activity **(Table 2).** Girls with large WC

NO	VARIABLE NAME	LABEL	INDICATORS
1	**PA_ Holidays**	During holidays, how active are you in comparison to school days?	Three categories: Less active, about the same, more active
2	**Enough_ Exercises**	In general speaking, do you think that you perform enough exercise to keep healthy?	Two categories: Yes, NO
3	**Enough excercise_holidays**	Do you perform enough physical activities during holidays in comparison to school days?	Three categories: less active, about the same, more active,
4	**Active._ compare**	How active are you, in comparison to others your age and sex?	Three categories: Below average, about average, above average
5	**Ph_ education_ classes**	Would you prefer to have physical education classes at school?	Two categories: Yes, NO
6	**Go _bed_ Early**	Do you normally go to bed early?	Two categories: Yes, NO
7	**Getup_ Early**	Do you normally get up early?	Two categories: Yes, NO
8	**Transportations_ Type**	Which type of transportation do you use for school and apart from school?	Three categories: car, walk, public transport
9	**PA_ at_ School**	Do you usually do any kind of PA at school?	Two categories: Yes, NO
10	**PA_ School_ Breaks**	What do you usually do at school breaks?	Three categories: sitting down, standing or walking around, running or other PA
11	**Reading_ Hours**	How many hours/day do spend in reading books, magazines, or comics?	Two categories: less than 2 hour/day, Or 2 hrs or more/day
12	**Homework_ Time**	How many hours per day do you spend on doing your homework?	Two categories: less than 2 hour/day, Or 2 hrs or more/day
13	**TV_ Hours**	How many hours/day do you spend watching TV or video?	Two categories: less than 2 hour/day, Or 2 hrs or more/day
14	**Playing_ Computer/ Computer_ Games**	How many hours/day do you spend on Computer or computer games?	Two categories: less than 2 hour/day, Or 2 hrs or more/day
15	**Light_ PA _Outside_ School**	Do you normally perform any kind of physical activities outside school e.g. walking, shopping, bowling, horse riding, and table tennis?	Two categories: Yes, NO

Table 1: Variables and Measures for Physical Activities. Perceptions, knowledge, attitudes variables about physical activities

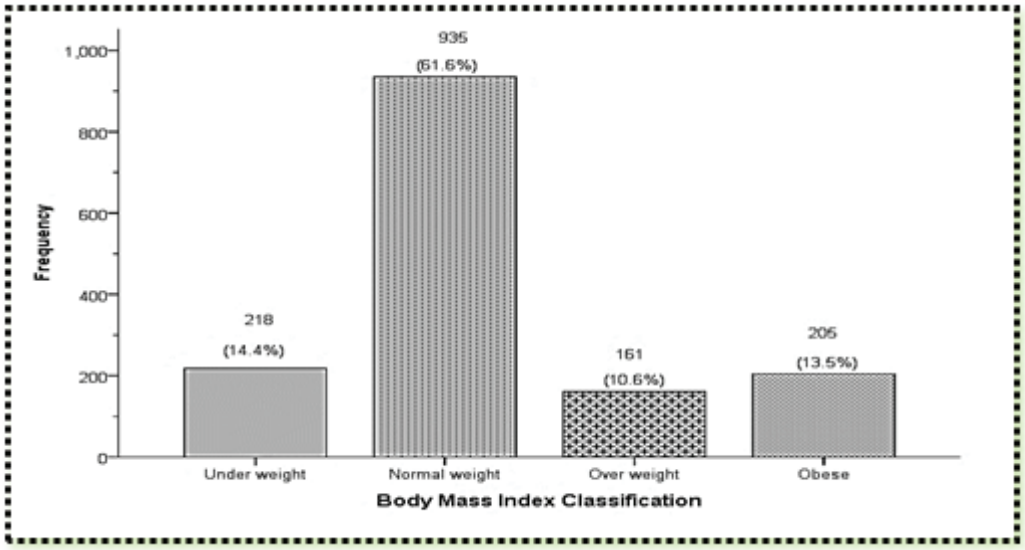

Figure 1: Weight status for participants. Source [7].

thought that they were more active outside school compared to inside school, and they were performing more activities outside school. They also most likely considered themselves healthy and reported performance of moderate activities, compared to those who had lower waist size (<75th percentile).

4. Discussion

Participants reported concerns related to physical activities and a high proportion of Jeddah girls thought that they were more active in comparison to peers and friends. Commonly, they reflected the same levels of physical activities in holidays, in comparison to school days, and most of the participants considered themselves performing enough exercise to keep them healthy. Findings confirmed no significant associations for physical activities with weight status based on other indices such as BMI status. This is in agreement with Fayssal et al., [1], who found that physical activity at different levels did not significantly relate to BMI on the 12-19 years-old population from three different provinces, including the Western province of Saudi Arabia. Girls with greater waist size were more likely to perform physical activities outside the school environment, and to perform moderate activities such as cycling and swimming, compared to those with lower WC at the 75th percentile.

Variables (number of respondents)	[WC at 75th percentile cut-off point]		
* Data reflects positive response	WC <75th n (%)	WC ≥75th n (%)	P Values
During holidays, how active are you in comparison to school days? (1511)			*P* = 0.005
Less active (534)	220 (38.3)	314 (33.5)	
About the same (325)	137 (23.8)	188 (20.1)	
More active (652)	218 (37.9)	434 (46.4)	
Do you normally perform any kind of physical activity outside school? (1484)*	369 (35.1)	673 (73.6)	*P*<0.001
Do you perform physical activities like: cycling, tennis, bowling, and horse-riding? (1476)*	141 (25)	294 (32.2)	*P*= . 003
In general speaking, do you think that you perform enough exercise to keep healthy (1504)*	161 (28.1)	388 (33.9)	*P* = .006

Table 2: Comparisons between surveys about physical activities & WC. WC at 75th percentile cut-off point.

5. Conclusion & Recommendations

1. Results emphasized the central role and obligation of decision makers in protecting young girls through providing a healthy environment in schools, which will affect girls' activities even after school.
2. Educational classes including physical education should be included in adolescent girls' schools, to enhance their knowledge and perceptions about the importance of physical activities in their life.
3. In order to achieve goals of this study, policy makers need to include physical education and activities in public schools to enhance girls' performance for physical activities and to acquire health benefits out of this activities.

6. Conflict of Interests

The author declares that there is no conflict of interests regarding the publication/ presentation of this work.

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