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Evaluation of Physical Activity and its Association with Bio-Socio-Demographic Features among Female Adolescent Students of Selected Preparatory Schools in Kerbala City, Iraq

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Annotation: Background: Promoting physical activity (PA) has become a major global public health priority. Moderate to vigorous PA is linked to improved immune and respiratory system function, lower body fat, lower cholesterol, and improved insulin sensitivity, which is linked to a lower chance of developing diabetes and cardiovascular diseases. This study aimed to evaluate of the association between PA and some bio-socio-demographic features among adolescent school girls in Kerbala City, Iraq. **Methods:** The study was a descriptive cross-sectional study on adolescent female students in the fourth and fifth grades aged 15 - 18 years, from 5 selected governmental preparatory schools in Kerbala city. Demographic characteristics, anthropometric measurements, PA, and recommended food scores (RFS) were assessed. **Results:** The results obtained showed that PA among adolescent school girls is strongly associated with maternal education and the family's economic level. Also, the physically active subjects differed significantly from their inactive counterparts with respect to BMI categories ($p = 0.005$), BMI ($p = 0.003$), PA values ($p < 0.0001$), sleep time ($p < 0.0001$),

screen time ($p < 0.001$) and RFS ($p < 0.001$). PA showed significant negative correlation with BMI ($r_s = -0.1923$, $p = 0.0290$). Conversely, PA show significant positive correlation with sleep time ($r_s = 0.3022$, $p = 0.0005$) and RFS ($r_s = 0.2451$, $p = 0.0051$). **Conclusion:** The findings of this study suggest that PA among adolescent school girls is influenced significantly by maternal education and economic status of their families. Also, high BMI, poor sleep time, high screen time and poor diet quality reduces the tendency to engage in PA.

Keywords: Physical Activity; Adolescents; School girls; Recommended Food Score; Socio-economic status.

Introduction

Physical activity (PA) is defined as any skeletal muscle-produced movement of the body that causes energy consumption. Activities such as walking, working out, swimming, and dancing, recreation, job, transportation, and home tasks are a few general categories for physical exercises that constitute PA [1]. Due to how well it affects the quality of life for those who care about their health; this is becoming a way of life in the majority of developed countries. Additionally, PA can be done while engaging in various activities such as work, travel, and leisure [2]. However, the level of PA has decreased as a result of urbanization and a growing reliance on automobiles. Thus, encouraging physical exercise has emerged as a top concern for public health worldwide. A higher sensitivity to insulin, which is connected to a lower risk of developing diabetes and cardiovascular illnesses, lower body fat, lower cholesterol, and better immunological and respiratory system performance are all associated with moderate to strenuous PA. Exercise has a positive impact on mental health, boosts self-esteem, and lessens depression symptoms [1]. The World Health Organisation (WHO) global plan on PA 2018 - 2030, estimates that physical inactivity causes roughly 3.5 million deaths globally each year, ranking fourth among risk factors for mortality; where lack of physical exercise and unhealthful eating patterns has also been noted as major factors in the burden of chronic diseases around the world hence, advocating for increased PA for a healthier world is ongoing [3].

Previous studies suggested that rising health implications were a result of citizens from different socioeconomic groups changing their dietary and lifestyle patterns. This necessitates considerable efforts to increase population engagement in PA. Review of the body of literature demonstrates that people's socio-demographic characteristics have a significant impact on their participation in physical activities [4-6]. Age, gender, income, education, occupation, and marital status are only a few of the socio-demographic characteristics included in the body of literature. Men are more likely than women to engage in PA, according to the majority of studies [5, 6]. Additionally, it was discovered that income and education had a favourable impact on PA participation. Most likely to engage in PA are people with higher educational backgrounds. This may be explained by their degree of awareness and knowledge of the health advantages of PA. Other socio-demographic factors, such socio-economic status or environmental traits, including disparities between rural and urban areas, have produced conflicting results with regard to PA [7].

Several theories about the relationship between children PA and adult PA have led some health promotion specialists to suggest that early PA may also directly influence adult health. There are two possible mechanisms by which encouraging PA in childhood can have an impact on adult

health as explained by Malina et al. First, if the link between PA and health has been proven, childhood PA patterns may continue into adulthood. This notion is predicated on the idea that children who are physically active grow up to be active people. The second pathway shows a connection between childhood PA and adult health. This is predicated on the idea that boosting children's PA will have long-term health advantages in adulthood [8].

The WHO aims to achieve 10% reduction in physical inactivity by 2025 and 15% reduction by 2030 [3]. The results of an analysis that included data from 358 population-based surveys conducted between 2001 and 2016 revealed that the prevalence of inadequate PA was higher than 50% among adults in Iraq, indicating that progress toward achieving the global target has progressed too slowly and are off course [9]. The population of the Arabian Peninsula is young, with roughly 20% of people under the age of 10 and about 60% under the age of 25 [10]. Majority of Arab teenagers, however, do not adhere to the suggested standards for daily PA. In seven Arab nations (Egypt, Djibouti, Libya, Jordan, Morocco, the United Arab Emirates and Oman,) it has been observed that over 85% of girls and 75% of boys aged 13 to 15 weren't participating in enough PA each day [11]. Additionally, Bdair et al linked the absence of PA among overweight and obese adolescents in Kerbela city with elevated cardiovascular risk factors for hypertension and type 2 diabetes mellitus [12].

Gender comparisons have rarely been taken into account, despite the fact that few researches have given results for both children and adolescents. In the 2012 Global School-based Student Health Survey (GSHS), which included students aged 13 to 15 years old in the analyses, 13.6% of Iraqi female students reported engaging in PA for a cumulative total of a minimum 60 minutes per day on five or more consecutive days over the previous seven days. Girls were routinely found to be less active than boys, with 95% of adolescent girls globally between the ages of 13 and 15 failing to meet recommended minimum PA levels and as a result, teenage girls have been designated as a priority category for raising PA levels [13]. However, attempts to increase PA in adolescent girls have met with very patchy success. Teenage PA-related issues may differ by gender, and as a result, interventions may have to be tailored differently for boys and girls in order to be effective [14].

In line with this, the present study evaluated the association of PA with some biological and social demographics among adolescent girls in schools located in Kerbala city, with the aim of identifying local risk factors that may hinder PA, which could help with the creation of more successful interventions.

Materials and Methods

Study population

The study was a descriptive cross-sectional study on adolescent female students in the fourth and fifth grades aged 15 - 18 years, from 5 selected governmental preparatory schools in Kerbala city. The selected schools were Shuhada' mu'tah, Nazik almalayika, Kerbala, Alsurur and Alharayir , Data collection was conducted during the 2017/2018 school year from 1st April to 25th April, 2017. Exclusion criteria included subjects aged 19 years and above as well as subjects whose questionnaires were not completely answered.

Ethical approval was sought and obtained from Iraqi Ministry of Health, Department of the Arab Board for Health Specialization, and from Directorate of Education in Kerbala Governorate, which in turn informed the Principals of the schools. In addition, school approval, parent/guardian consent as well as student's verbal consent for conducting the survey were obtained. The objectives of the study as well as the questions in the questionnaire were explained to the students prior to filling the questionnaire anonymously.

Questionnaire

For the assessment of PA, lifestyle, sedentary behaviour and dietary habits as well as questions on

demographic characteristics, the modified Arab Teens Lifestyle Study (ATLS) research instrument was adopted [15, 16]. To ascertain the feasibility of the questionnaire and to overcome any difficulties or related issues, which may arise during data collection, a pilot study was conducted prior to this study, in Nazik almalayika preparatory school, on 15 students and the questionnaire met good acceptance by the students and was found to be appropriate in line the objectives of this study.

The participants completed the questionnaire in their classrooms under the supervision of the researcher and their teachers.

Anthropometric measurements

Body weight was measured using calibrated digital portable scales, without shoes. Height was measured in the full upright position, without shoes, using a portable height measuring stadiometer. The body mass index (BMI) was calculated and categorised in accordance with the BMI reference for girls between 2 to 20 years old [17].

Measurement of Physical Activity Levels

The intensity of PA was measured based on metabolic equivalent Task (MET) minutes per week (MET-min/week) according to the compendium of PA for youth [18]. To classify the participants into Physically Active or Physically Inactive categories, we used a PA cut-off value of above or below 1680 MET-min/week of averaged total PA, respectively. The 1680 MET-min/week implies 60 minutes per day × 7 days per week × 4 METs, which corresponds to 1 hour of daily moderate-intensity PA as used in the ATLS study [15].

Recommended food score

Food frequency questionnaires (FFQs), created and standardized for adolescents by Silva et al. with the addition of regionally eaten Mediterranean food items, were used to gather dietary data, according to Auon et al. (2020) [19, 20]. The tool displayed a list of meals with consumption frequencies broken down into never, less than once per month, once to three times per month, weekly, 2 to 4 times per week, once a day, and 2 or more times per day. Such information was evaluated using a healthy diet score, often known as the Recommended Foods Score (RFS). The RFS, created by Kant et al [21], is a food-based tally that assesses the consumption of foods deemed to be in accordance with current dietary recommendations. The corresponding points for the RFS of the food items were; daily meal frequency (1), nuts (1), grains (1), lean meat (1), tea (1), seaweeds (2), dairy products (3), legumes (4), fish (5), fruits (12) and vegetables (17). Each suggested food or normal eating schedule (three meals per day), provided it was consumed at least once per week earned the subjects one point. A maximum score of 50 points was obtained as a result, where higher values indicate a higher-quality diet.

Statistical Analysis

The data were entered and analyzed using Statistical Package for Social Science (SPSS) version 20. Qualitative data was expressed as numbers (N) and percentages (%), quantitative variables were expressed as mean ± standard deviation (SD). Chi square test were used for analysis of qualitative variables while Mann-Whitney, and Spearman's correlation coefficients with 95% confidence interval determined using Fisher's transformation, for non-normally distributed data analysis. A p-value of < 0.05 was considered as statistically significant.

Results

General characteristics

Following application of the exclusion criteria as well as screening of duly filled questionnaires, 453 consenting students were recruited. Majority of the subjects (34.4%) were aged 16 years, followed by 17 year olds (25.8%), 18 year olds (23.5%), with the least being 15 year olds (16.3%). The general characteristics of the subjects are presented in Table 1.

Table 1: General characteristics of the subjects

		Total = 453
Variables		**n *(%)***
Age		
	15 years	74 *(16.3)*
	16 years	156 *(34.4)*
	17 years	117 *(25.8)*
	18 years	106 *(23.5)*
Study grade		
	Fourth	184 *(40.6)*
	Fifth	269 *(59.4)*
Marital Status		
	Single	444 *(98)*
	Engaged	6 *(1.3)*
	Married	3 *(0.7)*
Father Education		
	None	32 *(7.1)*
	Primary	49 *(10.8)*
	Secondary	146 *(32.2)*
	Higher	226 *(49.9)*
Mother Education		
	None	52 *(11.5)*
	Primary	74 *(16.3)*
	Secondary	162 *(35.8)*
	Higher	165 *(36.4)*
School type		
	Private	244 *(53.9)*
	Public	209 *(46.1)*
Type of residence		
	Apartment building	26 *(5.7)*
	Bungalow	173 *(38.2)*
	Duplex and above	254 *(56.1)*
House ownership		
	Private	361 *(79.7)*
	Rented house	78 *(17.2)*
	Others	14 *(3.1)*
Economic level		
	Low	19 *(4.2)*
	Middle	183 *(40.4)*
	Good	251 *(55.4)*
Smoking habit		
	Yes	15 *(3.3)*
	No	438 *(96.7)*
PA		
	Active	129 *(28.5)*
	Inactive	324 *(71.5)*
BMI		
	Underweight	12 *(2.6)*
	Normal	337 *(74.4)*

	Overweight	76 *(16.8)*
	Obese	28 *(6.2)*
Sleep time per day		
	< 8 hours	222 *(49.0)*
	≥ 8 hours	231 *(51.0)*
Screen time per day		
	≥ 2 hours	352 *(78.0)*
	< 2 hours	101 *(22.0)*
RFS		
	> 80th percentile	158 *(34.9)*
	< 80th percentile	295 *(65.1)*

PA (Physical Activity); BMI (Body Mass Index); RFS (Recommended Food Score)

The students in fourth grade were 184 (40.6%), while 269 (59.4) were in the fifth grade. Nearly all the subjects i.e. 98% were single with only a few engaged or married. Also, most of the subjects had fathers who were educated to the Secondary level (32.2%) or higher (49.9%) as well as mothers who had Secondary education (35.8%) or higher (36.4%). While 244 subjects attended private schools and the remaining 209 subjects were public school students, majority of the subjects (79.7%) live in privately owned houses with 173 (38.2%) and 254 (56.1%) living in bungalow and duplexes respectively. The economic level of the subjects was mostly 'good' (55.4%) and 'middle' (40.4%). Only 15 (3.3%) subjects were smokers as 324 (71.5%) students were categorised as physically inactive while 129 (28.5%) were physically active. Regarding the BMI categories, 12 subjects were underweight, majority of them (i.e. 74.4%) were normal, 76 subjects were overweight while 28 were obese. Subjects who with an average of less than 8 hours sleep time were 222 (49.0%) while those exposed to screen time of 2 hours and above were 352 (78.0%). From the RSF scoring, 158 subjects representing 34.9% score above the 80th percentile with the remaining 295 subjects scoring below the 80th percentile.

Comparison of bio-socio-demography based on PA

The comparisons made between the physically active and the physically inactive subjects with respect to bio-socio-demographic characteristics are presented in Table 2.

While the subjects differed in terms of study grade, marital status, father education, school type, residence type, house ownership and smoking habits, these differences was not statistically significant (at $p < 0.05$). Statistical significant difference (at $p < 0.05$) was obtained between the physically active and physically inactive subjects in terms of mother's education ($p = 0.006$), economic status ($p = 0.004$) and BMI categories ($p = 0.005$). Also, the groups significantly differed with respect to BMI ($p = 0.003$), PA values ($p < 0.0001$), sleep time ($p < 0.0001$), screen time ($p < 0.001$) and RFS ($p < 0.001$) (Figure 1).

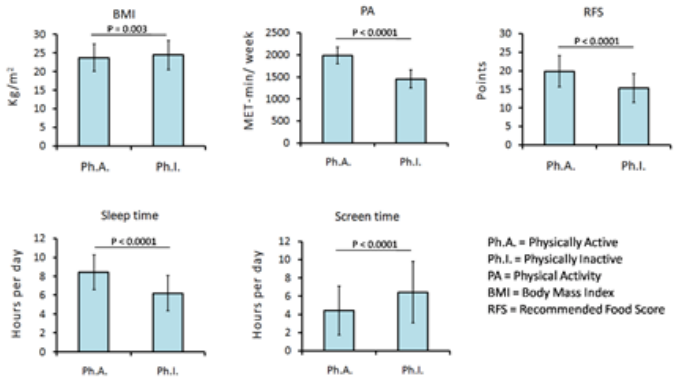

Figure 1: Comparisons between Physically Active and Physically Inactive subjects with respect to BMI, PA, RFS, Sleep time and Screen time.

The groups significantly differed in terms of BMI ($p = 0.003$), PA values ($p < 0.0001$), RFS ($p < 0.001$), sleep time ($p < 0.0001$) and screen time ($p < 0.001$).

Statistical significance was determined using Mann Whitney U test at $p < 0.05$.

Table 2: Bio-socio-demographic characteristics of the subjects with respect to physical activity

		Physically Active (n = 129)	**Physically Inactive (n = 324)**	**p-value***
Variables		n *(%) or (mean±SD)*	n *(%) or (mean±SD)*	
Age *(years)*		16.64±0.79	16.53±0.86	0.096
Study grade				
	Fourth	48 *(37.2)*	136 *(42.0)*	0.868
	Fifth	81 *(62.8)*	188 *(58.0)*	
Marital Status				
	Single	124 *(96.1)*	320 *(98.8)*	0.069
	Married/ Engaged	5 *(3.9)*	4 *(1.2)*	
Father Education				
	None	5 *(3.9)*	27 *(8.3)*	0.105
	Primary	19 *(14.7)*	30 *(9.3)*	
	Secondary	37 *(28.7)*	109 *(33.6)*	
	Higher	68 *(52.7)*	158 *(48.8)*	
Mother Education				
	None	9 *(7.0)*	63 *(19.4)*	0.006
	Primary	25 *(19.4)*	57 *(17.6)*	
	Secondary	44 *(34.1)*	110*(34.0)*	
	Higher	51 *(39.5)*	94 *(29.0)*	
School type				
	Private	74 *(57.4)*	170 *(52.5)*	0.889
	Public	55 *(43.6)*	154 *(47.5)*	
Type of residence				
	Apartment building	9 *(7.0)*	17 *(5.2)*	0.085
	Bungalow	39 *(30.2)*	134 *(41.4)*	
	Duplex and above	81 *(62.8)*	173 *(53.4)*	
House ownership				
	Private	104 *(80.6)*	257 *(79.3)*	0.833
	Rented house	22 *(17.1)*	56 *(17.3)*	
	Others	3 *(2.3)*	11 *(3.3)*	
Economic level				
	Low	5 *(3.9)*	14 *(4.3)*	0.004
	Middle	37 *(28.7)*	146 *(45.1)*	
	Good	87 *(67.4)*	164 *(50.6)*	
Smoking habit				
	Yes	2 *(1.6)*	13 *(4.0)*	0.186
	No	127 *(98.4)*	311 *(96.0)*	
BMI categories				
	Underweight	13 *(10.1)*	8 *(2.5)*	0.005
	Normal	89 *(69.0)*	231*(71.3)*	
	Overweight	24 *(18.60)*	73 *(22.5)*	
	Obese	3 *(2.3)*	12 *(3.7)*	

BMI *(Kg/m^2)*	23.66±3.65	24.42±3.91	0.003
PA *(MET-min/week)*	1986.64±186.49	1448.54±204.93	< 0.0001
Sleep time *(hours per day)*	8.42±1.82	6.21±1.87	< 0.0001
Screen time *(hours per day)*	4.40±2.69	6.43±3.37	< 0.0001
RFS *(points)*	19.80±4.21	15.32±3.86	< 0.0001

PA (Physical Activity); BMI (Body Mass Index); RFS (Recommended Food Score); SD (Standard Deviation) *Chi-Squared test or Mann-Whitney U test.

Correlation between PA and BMI, sleep time, screen time and RFS

In all the subjects, PA showed significant negative correlation with BMI (r_s = -0.1923, p = 0.0290, 95% C.I. [-0.7332, 0.4976]). Conversely, PA show significant positive correlation with sleep time (r_s = 0.3022, p = 0.0005, 95% C.I. [-0.4044, 0.7829]) and RFS (r_s = 0.2451, p = 0.0051, 95% C.I. [-0.6664, 0.5898]). Although negative correlation was observed between PA and screen time, the relationship was not statistically significant at p < 0.05. Table 3.

Table 3: Correlation between physical activity and BMI, sleep time, screen time and RFS in the subjects

		95% C.I.		
	r_s	**lower**	**upper**	**p value**
BMI	-0.1923	-0.7332	0.4976	0.0290
Sleep time	0.3022	-0.4044	0.7829	0.0005
Screen time	-0.0634	-0.6664	0.5898	0.4750
RFS	0.2451	-0.4547	0.7578	0.0051

BMI (Body Mass Index); RFS (Recommended Food Score); r_s (Spearman's Rho); C.I. (Confidence Interval)

Discussion

This study found that PA among adolescent school girls is strongly influenced by socioeconomic characteristics, the most important of which are the mothers' educational attainment and the family's economic level. Previous researches have outlined the implications of socioeconomic background on adolescent athletes' physical performance. Girls of higher socioeconomic status (SES) were shown to be more active than those of lower SES in a research of 599 adolescent girls in Portugal, and social background may be related to differences in views of the neighbourhood environment [22]. Because they affect people's attitudes, experiences, and exposure to a variety of health risk factors over the course of their lives, socio-economic factors have been acknowledged as a significant driver of health and quality of life [23, 24]. Particularly, compared to children who live in higher SES families, children who grow up in lower SES households are more likely to lead unhealthy lifestyles and develop cardiovascular disease and all-cause mortality [24, 25]. Additionally, earlier studies have linked low socioeconomic status with children's and adolescents' unhealthy weight [26, 27]. Higher levels of parental education have also been linked to adolescent females' bad health decisions and greater physical inactivity [28]. In the current study, the subject's PA was significantly impacted more by the mother's education than by the father's. The reason for this observation is not far-fetched. This is because young adolescent girls spend more time with their mothers than with their fathers, mothers with more educational backgrounds would understand the need for PA and would devise domestic chores or push the girls to exercise and work out. High maternal education level has been identified as a significant predictor of family economic position and elevated PA in adolescents, findings that are consistent with those of the current study [29, 30]. In contrast to the results of the present study, Sherar et al. found that higher

maternal education appears to be associated with lower objectively assessed PA and more time spent sedentary in adolescents from developed countries. The analysis involved 12,770 youths who reported having mothers with high educational levels across 10 studies. These findings suggest that children from poor SEP may not be at a disadvantage in terms of total daily PA, which is potentially excellent news for public health. To completely understand the relationship between maternal education and PA/time spent sitting, future work pooling standardised accelerometer data across nations has to prioritize including lower income/developing countries [31].

The present study also observed significant association between BMI categories with PA among the subjects. Although majority of the subjects irrespective of being physically active or inactive were of normal BMI, the mean BMI value for the physically active subjects was significantly lower compared to that of their inactive counterparts. The inverse relationship between BMI and PA is a chicken-and-egg situation. While lack of or inadequate PA and a sedentary lifestyle can lead to increase in BMI, individuals with unhealthy BMI levels are least likely to engage in PA. However, PA is crucial in preventing childhood and adolescent overweight and obesity as well as lowering the risk of adult obesity. Due to sexual maturation and, in many cases, a corresponding decline in PA, puberty and the subsequent adolescent period are recognized as particularly sensitive ages for the development of obesity [32]. The majority of children and adolescents do not reach the required PA criteria, according to studies, and those who engage in more PA often have lower levels of body fat than those who engage in less PA energy expenditure has decreased as active behaviours have been replaced by increasingly sedentary activities. Without engaging in proper activity, children are more likely to live less healthy lives than their parents. The participation of children and adolescents in PA and sport is a basic goal of obesity prevention due to the significant risk of overweight adolescents becoming obese adults [33]. Additionally, other studies have found the opposite association between PA and BMI, which is similar to the findings of this study [34, 35].

In this study, the cut-off of 1680 MET-min/week was used to define PA. Subjects with PA values of 1680 MET-min/week and above were categorised as physically active, while those with PA values below 1680 MET-min/week were physically inactive. Interestingly, the mean values of PA for the physically active and physically inactive subjects differed significantly; an indication that the dichotomy used (i.e. 1680 MET-min/week) was appropriate.

Regarding sleep time and screen time, the present study observed significant higher sleep time and lower screen time among the physically active subjects compared to their inactive counterparts. Inconsistent results have been found in the relatively few researches that have studied the connection between adolescent physical activity and sleep using objectively assessed physical activity [36-38]. Similar to the current study, Olds and colleagues (2011) discovered that Australian youth aged 9 to 16 had lower sleep durations when they engaged in physical activity [39]. Other research either revealed no significant link between physical activity and sleep duration [40] or that there was a favourable correlation [41]. Studies have indicated that low PA and high screen time can both contribute to poor sleep quality and an increased risk of mental health issues, even while poor sleep and high screen time both impact the likelihood to engage in vigorous PA. A study conducted by Wu et al, evaluating the associations between associations of PA and screen time with self-reported mental health and sleep quality among Chinese college students revealed that low PA was significantly adversely linked with symptoms of psychopathology, including anxiety, depression, and insomnia. The risks of mental health issues and poor sleep quality were enhanced when low PA and excessive screen time were combined [42].

In this study, the overall diet quality of the subjects, i.e. the RFS, was found to be significantly higher in physically active subjects relative to that of the inactive group. The RFS was used as a simple tool to evaluate the quality of the overall diet, in our study. However, prior studies have utilized a variety of additional instruments to calculate the overall diet ratings [43-46]. Prior research has linked high RFS scores to better physical performance, increased mental health, weight loss, and a decreased risk of cardio-metabolic illnesses [47-50]. Coelho et al. found no

correlation between students' extra weight and food intake as measured by the RFS, which supported Epstein et al long term intervention study [51, 52]. However, according to LeCroy et al, eating enough fruit and vegetables can prevent the development of obesity. This finding was corroborated by Ruiz et al study of adolescents aged 12 to 19 years, which found a negative correlation between frequent vegetable consumption and overweight [53, 54].

This study's correlation analysis demonstrated a negative correlation between PA and BMI, which is in line with the findings of Eddolls et al. and Garcia-Hermoso et al [55, 56]. The results of earlier studies conducted by Memon et al. (for sleep time) and An et al. (for diet quality), were congruent with the findings that PA showed significant positive association with sleep time and RFS [57, 58].

The following are some limitations of this study: First, because the study is cross-sectional, it was impossible to establish a causal link between PA and RFS. In the future, longitudinal research will be necessary to confirm the causal link between diet quality and PA. Second, no instruments were employed in this study to assess nutrient intake or consumption quantity; the RFS was only used to evaluate diet quality. Because the RFS in this study was based on the frequency of meals or other foods consumed each day, it may have underestimated or overestimated an individual's intakes. Also, the information obtained was based on self-report, although every effort was made to minimize any possible over- or under-reporting by the participants.

It is important to state however, that to the best of our knowledge, this study is the first study of its kind conducted in Kerbala city, and since there is to a great extent, similarity between living conditions and attitudes over most Iraqi cities. The results of this study could be reflected on teenage girls all over Iraq regarding the level of PA in adolescent females and its association with the bio-socio-demographic factors analysed.

Conclusion

From the findings of this study, it can be concluded that PA among adolescent school girls is influenced significantly by maternal education and economic status of their families. Also, factors such as high BMI, poor sleep time, high screen time and poor diet quality (i.e. low RFS) have significant implication on the tendency to engage in PA, which may increase the risk of becoming overweight and obese, leading to poor health and low quality of life.

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Conflict of Interest: None

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