Original Article

Assessment of physical activity among school-going adolescents of ninth and tenth grade in Kamalia district, Toba Tek Singh, Pakistan

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Objective: To measure the physical activity and participation in sedentary behavior of adolescents and to measure the association of physical activity and socio-demographic variables.

Methodology: This study was conducted from May to July 2016 in a small town of Punjab, Kamalia and included 427 adolescents of ninth and tenth grade of government high schools. We used global physical activity questionnaire, to measure physical activity, sedentary behavior, participation in physical education class and travel to school. Data were analyzed in SPSS 21.

Results: More than 80% of adolescents were physically inactive and more than 60% were living a sedentary life. 54% of students never participated in physical activities, whereas 63% of students did not even know the benefits of being physical active. There was no mandatory physical education class for students in school.

Conclusion: Adolescents are not physically active and are prone to develop sedentary behaviors in their lives. This can lead to unhealthy lifestyle and development of many diseases in their middle age.

Keywords: Adolescents, physical activity, school, sedentary life style.

INTRODUCTION

According to WHO physical activity is defined as, "any bodily movement produced by skeletal muscles that require energy expenditure".[1] In order to understand concept of physical activity, first of all we need to understand what total energy expenditure(TEE) of body is. TEE is composed of three components, basal energy expenditure, diet induced thermos genesis, and physical activity. BEE is the energy required for all vital functions of body when a person is very relaxed and breathing normally.[2] Physical inactivity is considered as a big public health problem and WHO developed a global strategy to control it.[3]

After surveys of many countries, physical inactivity was found to be fourth risk factor of mortality globally.[4] Many countries used three evidence based strategies to promote physical activity which include environmental and policy approaches (cycling tracts, public facilities, healthy policies), information approach (campaigns) and behavioral and social approaches (physical education in schools, social support).[5,6] Questionnaires are used assess results[7] as it is inexpensive.[8]

Adolescence is a vulnerable age and adolescents adapt many unhealthy and risky behaviors that follow them their whole life. One of this unhealthy behavior is physical inactivity and sedentary life style.[9] The reasons of this among this age group are smoking, pregnancy, television watching, playing video games, computers, laptops, mobile phones and other indoor activities.[10] Other reasons include violence, air pollution, traffic accidents and absence of parks and places of recreation.[11,12] The aim of this study was to find the prevalence of physical inactivity in government schools of Kamalia.

METHODOLOGY

This cross-sectional study was conducted in government girls' high school and government boys' high school in Kamalia, which is one of four tehsils in T.T. Singh district of Punjab province of Pakistan. Population is approximately 200000. Data were obtained from adolescents of both schools (9^{th} and 10^{th} grade) with help of a structured and self-administered questionnaire. Sample size was calculated for the study at 95% confidence level with 5% standard error. Total sample size was 456. Adolescents who were absent or who refused to participate were excluded from the study.

Statistical Analysis: Data were analyzed in SPSS version 21.Chi-square test was used in order to find association between socio-demographic variables, physical activity and sedentary behavior.

RESULTS

We distributed 456 questionnaires; 427 were returned. Out of 427 respondants, 218 were males, and 209

females. Average age was 14.69 years (range 12 – 16). In response to a question regarding sedentary behavior, 69.1% of students had sedentary behavior (Table 1).

Table 1: Descriptive statistics showing physical activity and sedentary behavior (n = 427).

Variable	Number	%
Physical activity	74	17.3%
No physical activity	353	82.7%
Physical education class (YES)	17	4%
Physical education class(NO)	410	96%
Sedentary behavior(YES)	295	69.1%
Sedentary behavior(NO)	132	30.9%

Table 2: Frequencies with percentages of variable physical activity.

Variable	Response	Number	%
Participation in sports teams	Yes	198	46.4%
	No	229	53.6%
Travel to and from school by walking or by a bicycle	Yes	206	48.2%
	No	221	51.8%
Were you taught in any of your classes the benefits of physical activity?	Yes	133	31.1%
	No	268	62.8%
	I don't know	26	6.1%

Only 46.4% students participated in sports activity. However 48.2% used bicycles as their mode of travel from home to school and 68.9% were not taught regarding the benefits of physical activity (Table 2). Female students were more inactive (Table 3) and ninth graders were more inactive (Table 4).

Table 3: Physical activity with regard to gender.

Gender	Physically inactive	Physically active	Total	P-value	X2
Male	172	46	218	0.036	4.420
Female	181	28	209		
Total	353	74	427		

Table 4: Physical activity with regard to grade.

Grade	Physically inactive	Physically active	Total	P-value	X2
9th grade	184	36	220	0.586	0.296
10th grade	169	38	207		
Total	353	74	427		

DISCUSSION

The most striking result to emerge from the data is that only 17.3% adolescents were physically active. Out of 17.3%, 62.2% were males and 37.8% were females. This is similar to a study from UK.[13] The relation between physical activity with grade (9th and 10th), and physical activity with age was not significant. This is contrary to a study that showed that inactivity increased with age.[14]

We found that 69.1% respondents had sedentary lifestyle (58.6% males and 41.4% females). Sedentary lifestyle was seen in 40.7% students of 9th grade and this percentage increased to 59.3% in 10th grade. This finding is consistent with a previous study.[15]

A Meta-analysis found relationship between sedentary behavior and physical activity among adolescents and both these behaviors can exist at the same time and are independent of each other.[16] We also found that boys were more active physically than girls but at the same time they are exhibiting more sedentary behavior than girls.

We found that 48.2% students went to school by riding a bicycle or by walking (physical activity); both being healthy behaviors. 51.8% students preferred some other way of transportation. These two ways of going to and from school meet the criteria of physical activity guidelines and interventions to increase physical activity among school going adolescents.[17] The reasons why girls do not use these two options for going to and from school? Can be cultural or issues regarding safety in our country.[18]

This study indicates that in government schools of Kamalia, there is no mandatory physical education class for students. Students who played in sports teams had some exposure to physical education but 93.7% never went to physical education class and 62.8% were not taught any benefits of physical activity in class. This

study finding are similar to a study that concluded that girls' participation in sports is less than boys.[19]

CONCLUSION

Only 17.3% adolescents are physical active and most of them are boys. Physical activity had no association with grade and age of adolescents and it can be because of small sample. Sedentary behavior is present in them and males are exhibiting more sedentary behavior than females and it increases with class (grade). There is no mandatory physical education class for students in government high schools.

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