Original Research Article

Physical Inactivity, Sedentary Behaviours and its Psycho - Social Correlates among Adolescent Students of Selected Schools of South 24 Parganas, West Bengal

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ABSTRACT

The potential synergistic effects of multiple health compromising behaviours like physical inactivity, sedentary behaviour and unhealthy dietary pattern, tobacco use etc on the risk of chronic conditions and health outcomes is a key issue for public health. In 2010, 65% of deaths worldwide were attributed to non-communicable diseases (NCDs). Many risk factors for NCDs among adults are associated with behaviours learned during childhood and adolescence. This study aimed to find out the physical inactivity and sedentary behaviours pattern and its psycho-social correlates. Cross sectional descriptive study was conducted among 402 adolescent students. Samples were selected by disproportional stratified random sampling method from class IX, X, XI, XII. Equal representation was taken from each class & each gender. Data were collected through pretested, validated and reliable questionnaire which was based on AHWQ, YRBS, and literature review. Result of the study suggested more no of girls i.e. 68 % girls students were physically inactive than boys (65.35%). More no of girls (43%) than the boys (38.6%) used to spend their leisure time by sedentary behavior> 2hours/ day. More no of girls spent time by watching TV, Chatting with friends more than boys.Low self esteem and presence of physically inactive family members commonly related with physical inactivity and sedentary behavior of the students.

Key Words: Physical Inactivity, Sedentary Behaviours, Perceived health status, Value on health, Self esteem, Family influence/ family model, Friends influence./ friend model

INTRODUCTION

Lifestyle factors play an important role in the development of non-communicable diseases (NCDs), like diabetes, [1] cardiovascular diseases [2] and obesity. [3] Consumption of high-energy, high fat diets and deterioration in dietary quality coupled with sedentary behaviour often causes accumulation of adipose tissue and consequently, a progressive rise of overweight. Amount of energy intake and weight are strictly related to insulin resistance, increased risk of cardio-metabolic abnormalities. [4]

A high rate of overweight and a general trend of obesity are quite frequent also in early age, as shown by surveys on children and adolescents. [3] A reduction in outdoor activities and a preference for indoor activities such as TV viewing could partially explain the rise in childhood obesity rates. [5]

The World Health Organization (WHO) defines physical activity as a bodily movement produced by skeletal muscles that substantially elevates energy expenditure. [6] It may promote weight loss, reduction of visceral fat, lower blood pressure [7] and even prevent of the onset of type 2 diabetes. [8] Furthermore study conducted by Willet et al. highlighted, regular (>3 times per wk) physical activity, exercised with moderate intensity, reduces the rise of risk factors related to NCDs. [9]

An analysis of the distribution of health behaviors among adolescents from more than 100 countries found that approximately 80% of them performed daily

physical activities (for at least 60 min), 32% used the computer for >2 h per day, 6% smoked cigarettes daily, 7.6% consumed beer weekly, and 25% had an unhealthy diet. [10] Sedentary adolescents have a higher risk of obesity. [11] Physical inactivity and sedentary behavior are different constructs and represent different causes and consequences that affect health.

Despite the health benefits, a rapid decline in physical activity during adolescence is seen. Better understanding of the correlates of physical activity and sedentary behavior in adolescents will support the development of effective interventions that promote an active lifestyle and prevent a sedentary lifestyle.

RESEARCH METHODOLOGY

This is a cross-sectional study conducted during December - February 2018 in randomly selected two co educational higher secondary schools of Sonarpur block of south 24 Parganas. Total 480 students were selected randomly, among them 30 boys and 30 girls were selected from each class IX, X, XI, XII from each school. Due to incompleteness, 78 questionnaires were rejected. Data were analysed from 402 students.

Data were collected through self administered questionnaire which consisted of two sections. Section one consisted of demographic information & psycho social variables and section two consisted of items of youth risk behaviour surveillance (YRBS) to measure physical inactivity & sedentary behaviours.

Physical Inactivity was measured by WHO guidelines [1] affirming that children/ adolescent aged (15-17 years) should practice at least 60 mins physical activity including moderate to vigorous physical activity per day. So students' physical activity level was assessed by 4 items. Two items assessed the no. of days individual had engaged in 30 mins bouts of moderate PA and 20 mins bouts of vigorous PA for at least 10 mins at a time without stopping during last 7 days. [12] Another item [13]

assessed the no of days individual had engaged moderate PA to vigorous PA (MVPA) for at least 60 minutes daily. Last two items assessed the no. of days individual performed muscle strengthening and muscle loading exercises during last 7 days. Cut off points for adequate PA had been selected based on CDC guidelines to identify the individual who were physically inactive. These was
Who did not perform at least 60 minutes of MVPA daily.

Sedentary behaviour: This behaviour was assessed by 6 items. During the leisure time other than study, students were asked how many days per week they spent time by simply sitting , lying, reclining other than sleep for 2 hours or more. [12-14] They also asked to mention how much time they spent in five categories of sedentary behaviour (watching TV, video, playing videogames, activities in social media, doing hobbies like painting/ playing instruments sitting around/ chatting with friends/ listening music/ playing card/ludo)

Tools were tested for face validity & content validity by seven experts. CVI was 0.96. Reliability was established by test retest method .Pearson product moment was calculated for scoring question in each part of the tool and ranged from 0.72 – 0.84 and Cohen's kappa was calculated for discrete data and ranged from 0.8 – 1. The tool was translated to Bengali and re translated to English by language experts. Hence the tool was found valid and reliable for the purposes of the study. Ethical permission obtained from ethical committee. Parent informed consent taken and verbal ascent taken from participants. Administrative permission taken from school authority, anonymity and confidentiality were maintained.

Statistical methods used:
Descriptive statistics used for description of sample characteristics, psychosocial correlates and description of physical inactivity and sedentary behaviour.

Inferential statistics (Pearson r) calculated to find out the correlates of physical inactivity and sedentary behaviour

RESULT

Table No – 1 Distributions of the participants in terms of their demographic characteristics N= 402

Sl no	characteristics	Boys (n=202)		Girls (n=200)	
		F	%	F	%
1	Age (in Years)				
	• 13 – 14	33	16.3	22	11.0
	• 15 – 16	72	35.6	81	40.5
	• 17 – 18	70	34.7	79	39.5
	• 19 - 20	27	13.4	18	9.0
2	Religion				
	• Hindu	174	86.1	169	84.5
	• Muslim	26	12.9	29	14.5
	• Christian	2	01.0	2	01.0
3	Caste				
	• General	64	31.7	98	49.0
	• SC	85	42.1	44	22.0
	• ST	45	22.3	53	26.5
	• OBC	8	03.9	05	02.5
4	Class				
	• Class IX	50	24.8	50	25
	• Class X	50	24.8	52	26
	• Class XI	50	24.8	49	24.5
	• Class XII	52	25.6	49	24.5
7	Mother occupation[a]				
	• Service	05	02.5	04	2.0
	• Cultivation	30	14.9	35	17.5
	• Independent profession	40	19.8	38	19.0
	• Business	35	17.1	30	15.0
	• Caste occupation	-	-	-	-
	• Labourer	34	16.8	30	15.0
	• Home maker	58	28.8	63	31.5
8	Father occupation				
	• Service	16	7.9	13	06.5
	• Cultivation	42	20.8	39	19.5
	• Independent profession	45	22.3	47	23.5
	• Business	39	19.3	44	22.0
	• Caste occupation	03	01.5	04	02.0
	• Labourer	57	28.2	53	26.5
9	Income level				
	• APL	48	23.8	59	29.5
	• BPL	154	76.2	141	70.5

[a]UdaiPareek scale (1964)

Data presented in Table no – 1 shows though approximately equal no of boys and girls were selected from each class (IX, X, XI, XII), but more no of students i.e.20.2 % boys and 19.2 % girls belonged to older age group i.e. 17-18 years. Most of the students (85.3 %) were Hindu and only 1 % student were Christian.

Data further reveals that majority of the students' mothers (71.1 %) were house wives and 3.48 % students' mothers worked at a job 100 days work whereas most of the students' fathers (93.3 %) worked at a job full time throughout the year and 4.47 % students' mother worked at a job 100 days work. Most of the students (73.4 %) belonged to BPL group.

Data presented in figure 1 and figure 2 highlights that 31.80 % of students' mothers studied upto middle class; only 3.2 % had non formal education whereas 27.30 % students' fathers studied uptosecondary; only 3.2 % had non formal education. Only 2.4 % students' mothers completed education upto graduate and above whereas 11.70 % students' fathers completed education upto graduate and above.

Out of 402 students, 67.7 % students perceived physical inactivity have negative effect on their health whereas only 54.2 & students perceived sedentary behaviour have negative effect on their health.
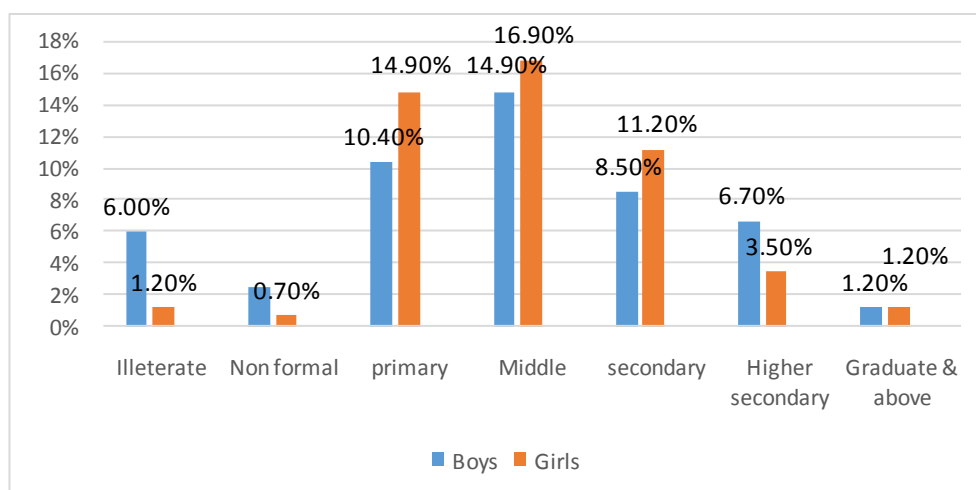

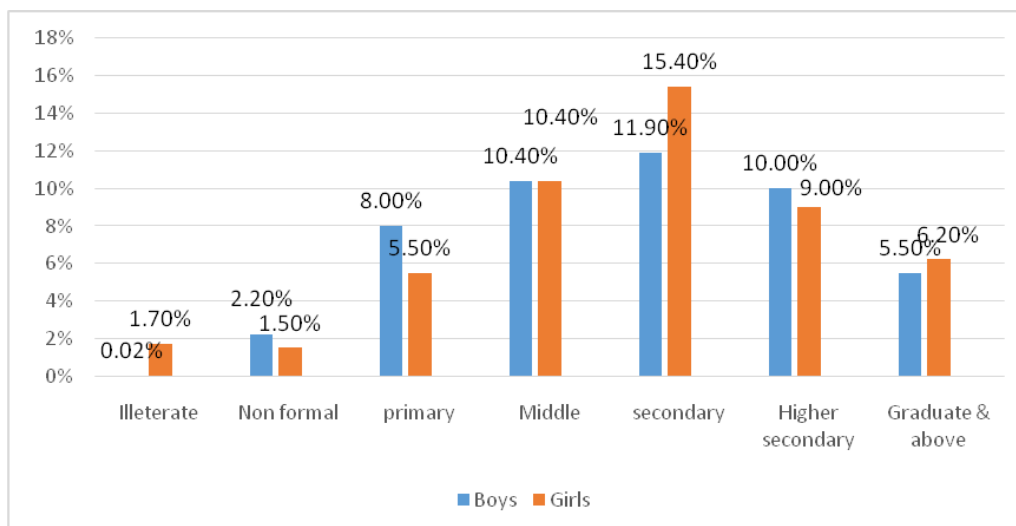**Figure 1: Distribution of participants in terms of their mother Education**

Figure 2: Distribution of participants in terms of their Father Education
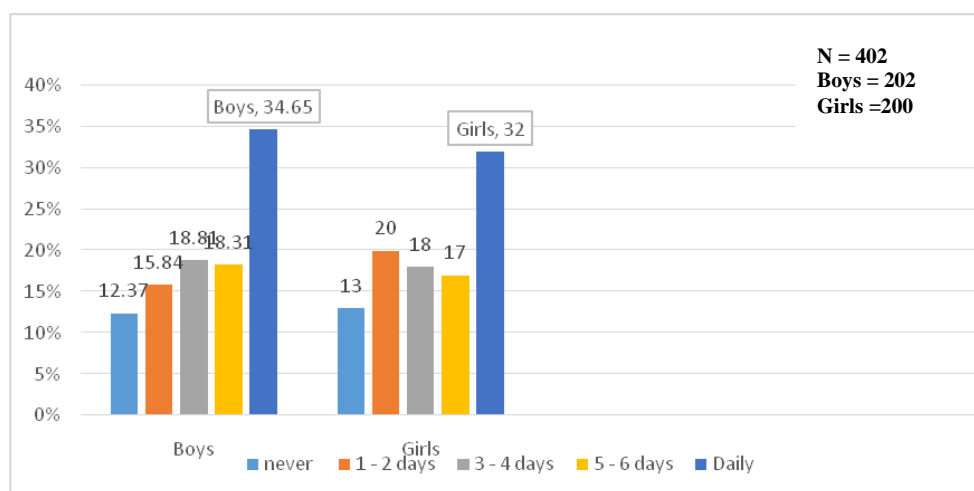

Figure 3: Gender wise distribution of participants in terms of their frequency of physically activity for at least 60 minutes (recommended)
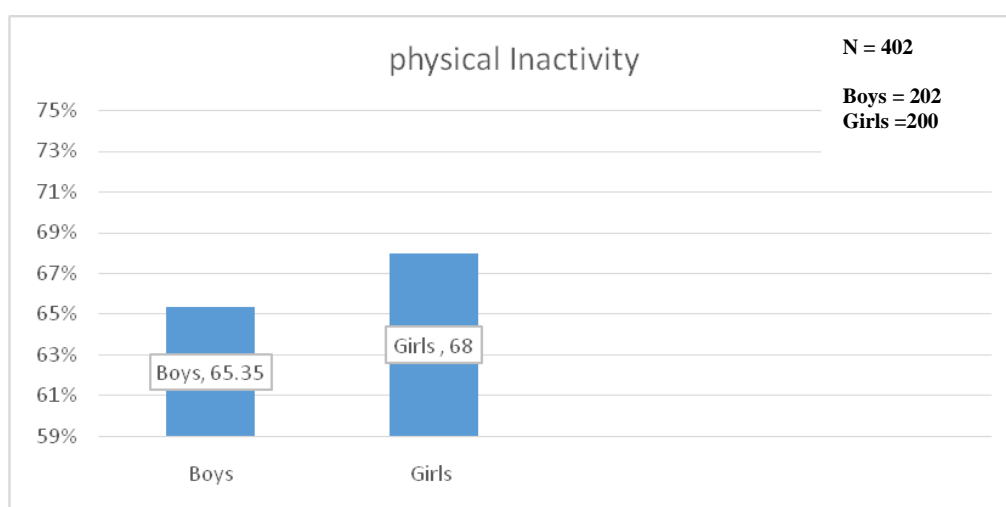

Figure 4: Gender wise distribution of participants in terms of their physical Inactivity

Data presented in Figure 3 reveals that girls were less physically active than boys .More no. of boys (34.65 %) performed any types of physical activities at least 60 mins daily

than girls (32.0 %). It also reflects that 12.37 % boys and 13 % girls were never been physically active for at least 60 minutes not even for single day in a week.

Data represented in Figure 4 reveals that more no of girls that is 68 % girls were physically inactive than boys i.e. 65.35 %.
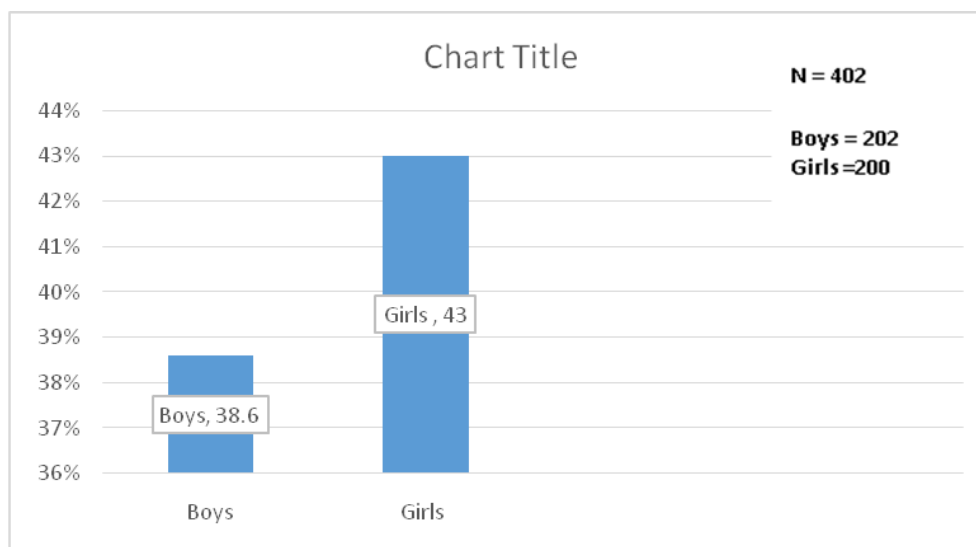

Figure 5: Gender wise distribution of participants in terms of Spending leisure time activities by any means of sedentary behaviour (> 2 hours day)

Data presented in Figure – 5 highlights that more no of girl students (43 %) were spending time by sedentary activities> 2 hours / day than 38.6 % boys.

Table 2 Frequency percentage distribution of participants in terms of their Different categories of sedentary behaviours. N = 402

Sl no	characteristics	Boys (n=202)		Girls (n=200)	
		F	%	F	%
	• Watching TV, Video				
	o Less than 1 hour	18	8.91	16	8.00
	o 1 – 2 hour	28	13.86	24	12.00
	o More than 2 hours	32	15.84	42	21.00
	• Playing videogames				
	o Less than 1 hour	13	6.43	5	2.5
	o 1 – 2 hour	4	1.98	1	0.5
	o More than 2 hours	2	0.99	Nil	Nil
	• Activities in social media (FB, Whatsapp)				
	o Less than 1 hour	9	4.45	11	5.5
	o 1 – 2 hour	Nil	Nil	Nil	Nil
	o More than 2 hours	Nil	Nil	Nil	Nil
	• Doing hobbies, painting, playing instruments, listening music , reading story books				
	o Less than 1 hour	22	10.89	20	10.00
	o 1 – 2 hour	13	6.43	11	5.5
	o More than 2 hours	18	8.91	14	7.00
	• Sitting around chatting with friends, using telephone, playing card, Ludo				
	o Less than 1 hour	14	6.93	18	9.00
	o 1 – 2 hour	15	7.43	18	9.00
	o More than 2 hours	14	6.93	21	10.5

Data represented in Table – 2 further indicates commonest ways of spending time was watching TV, video. Here also more no of girls i.e. 21 % and 10.51 % of girls students were spending time by watching TV, Video and Sitting around chatting with friends, using telephone, playing card, Ludo whereas in case of boys, it was 15.84 % and 6,93 % respectively.

Table – 3 Calculation of *r* between the related factors and physical inactivity and sedentary behaviour   N = 402

		Physical activity	Sedentary behaviour
1	Perceived health status	.111[*]	-.018
2	Value on health	.017	.031
3	Felt stress	-.018	.037
4	Subjective weight perception	-.037	.043
5	Self esteem	.113[*]	-.147[**]
6	Emotional well being	.018	-.161[**]
7	Parental support	.169[**]	-.016
8	Parental monitoring	.058	-.117[*]
9	Perceived health effect	.140[**]	.065
10	Family influence/ family model	0.113*	0.129**
11	Friends influence./ friend model	-0.027	0.116

Data presented in table 3 shows that physical activity is positively related with Perceived health status, Self-esteem, Family influence/ family model at 0.05 level of significance and also positively related with Parental support, Perceived health effect at 0.01 level of significance.

Data also reveals sedentary behaviour is negatively correlated with parental monitoring at 0.05 level of significance and also negatively correlated with Self esteem, Emotional well being; positively correlated with Family influence/ family model at 0.01 level of significance.

DISCUSSION

According to WHO recommendations, affirming that Children/ adolescents aged 5-17 yr should practice at least 60 min of physical activity per day, [15] only 42 % girls and 44 % boys were in line with this value. The study findings of the present study consistent with the study conducted by Gulati et al. [16] who found overall, among the 1,680 children of the sample 350 (21 %) were inactive, 303 (18 %) exercised at least 1 time per wk and 349 (21 %) between 2 and 3 times weekly. 59 % of children who practiced physical activity on regular basis (more than 3 times per wk), the intensity of exercise varied from half an hour to an hour. Girls were more inactive than boys.

As per WHO, 81% of school going adolescents are insufficiently physically active globally. School going adolescent are less active with 84% boys and 78% girls not meeting WHO recommendations. Among LMICs, India showed the highest proportion of adolescents who engaged in PA 60 minutes daily. [17] The observations made in this study support the global low levels of PA among adolescent students.

Several studies have been conducted about frequency and intensity of physical activity in India and South-Asian countries, associating regular energy expenditure to various co causing variables such as lifestyle factors, dietary intake and family correlates or cultural specific aspects. In the present study low self esteem and presence of physically inactive family members commonly related with physical inactivity and sedentary behavior of the students.

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