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Exploring Trends and Barriers to Physical Activity in Adolescents/ School Going Children of Rawalpindi

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ABSTRACT

Adolescent's active participation in PA may reduce the risk of chronic non-communicable diseases (NCDs) in adulthood. Barriers to PA and the association among these barriers were examined. **Objective:** To explore barriers to PA in the adolescent of public school of Rawalpindi, Pakistan. **Methods:** A Descriptive cross-sectional design, multistage cluster sample of adolescents (N = 400) with 214 (53.5%) male and 186 (46.5%) females was conducted. Independent variables such as sociodemographic, (i.e., education, age, gender, socioeconomic level), the discernment of barriers which did not permit to take part in PA, (i.e., fear of harm, lack of time, resources, social support, energy, and motivation, inaccessibility of recreational sports near residence and lacking skills); and adolescent's physical activity participation was evaluated using WHO tool, international physical activity questionnaire (IPAQ). To investigate the connection between perceived barriers and PA participation, multiple regression analysis was used. **Results:** Of the 400 adolescents females are more likely to perceive a lack of time as a barrier to engaging in PA [OR 2.17 (95% CI 1.45--3.23)]. In a similar vein, those from lower socioeconomic levels are more likely to perceive a lack of motivation. [OR 2.17 (95% CI 1.42--3.32)]. Regarding poor/fair Self-perception of health have a high chance of perceiving scarcity of resource [OR 4.25 (95% CI (2.72--7.43))] were viewed as obstacles to PA. **Conclusions:** Low socioeconomic status, lack and standard of education, and self-perception of health are indicators of are indicators of potential obstacles to physical activity.

INTRODUCTION

Worldwide, Physical Activity (PA) has been documented as being the essential lifestyle choices that significantly improve the welfare of school-age children and adolescents and have an impact on their healthy development [1]. PA is associated with greater physical strength, reduced anxiety and depressive symptoms, improved cardio-respiratory fitness, and a lower chance of contracting a number of non-communicable diseases [2]. It also has collective remuneration by escalating community relations and commitment [3]. World Health Organization (WHO) has reported physical inactivity among

the top four risk factors that add in global mortality. Globally, physical inactivity is responsible for 1.9 million death includes disease as 10-16% of cases of breast, colon, and rectal cancers; 22% of coronary heart disease and diabetes mellitus [4]. Lancet PA Series has reported that 80% of adolescents are not able to meet the most favorable PA criteria [5]. According to AHA recommendations, schools with routine classes of physical education (PE) and playgrounds are important medium and moderators to promote and implement physical activity in adolescents [6]. Lifestyle and living environments of adolescents,



cognitively, proceed as the barriers to PA [7]. According to the sociological approach, perceived barriers of PA are constructed at the intra and interpersonal levels and they are predictors of PA [8]. PA levels have been reported to be affected by socio demographic factors of gender, socioeconomic status, age, peers, PA of parents, time limitations, parental authority, internal barriers and other variables such as presence of parks and playgrounds in the neighborhood –external barriers [9]. Sedentary lifestyle of children has led to high prevalence of NCDs, is a significant factor in the rise in global obesity epidemic and therefore, rising mortality from cardiovascular diseases [10]. India (18.5%-88.4%), Pakistan (60.1%), and Sri Lanka (11.0%-31.8%) had the highest overall prevalence of inactivity among South Asian adults, according to physical activity patterns [11]. A study conducted at Lahore, found out of 200, male was 38 and 162 female (18 to 22 yrs). Physical inactivity was 69% and physically active were 31%; The Institute of Diet and Nutritional Sciences (UIDNS) at the University of Lahore had found 56% more physically inactive students than active students [12]. The average daily energy expenditure contributed by PA is 18-29%. Hooked on inadequately elevated rates of children/ adolescent obesity [13]. Furthermore, in order to classify definite contexts where PA may have deteriorated and can be targeted for active interferences. Consequently, aim of present is to identify the trends and of the awareness of impediments for PA in the adolescent's populace in Public Schools of Rawalpindi. Inadequate PA leads to increasing the weight of non-communicable diseases (NCDs) in Pakistan. There is an essential need to study the significance and influence of physical activity among adolescence and the major barriers that prevents the youth to adopt physically active and healthy lifestyle in adolescent years. The objective was to ascertain the hurdles to PA in the adolescent of Public School of Rawalpindi, Pakistan.

METHODS

This cross-sectional prevalence study was performed with 214 male and 186 females from Public School of Rawalpindi. The population was the adolescents of eleven to seventeen years of age as per the WHO criteria and was conducted from July to December 2019. The adolescents of all classes from 8th to 10th of public school who gave informed consent were included. However, the adolescents with the chronic illness were excluded. The sample size was calculated through Open Epi Software at 38% prevalence for physical activity among adolescents i.e., 362 + 10 % non-response rate i.e., 398 at C.I Level of 95% and Significance Level of <0.05. The data were collected from 400 adolescents. The estimated internal consistency for a questionnaire with 41

items by Cronbach Alpha (Alpha was 0.726) calculated through pilot study. Multi-stage sampling technique was adopted and list of Public Schools of Rawalpindi was obtained from the Secretariat. Schools were divided into four clusters having equal proportions of male and female adolescents to avoid bias in the research study. One cluster was selected through Simple Random Sampling was performed using lottery method out of these four clusters. One Public school from that cluster was further selected through Simple Random Sampling technique using lottery system. The nominal rolls of all adolescents from 8th to 10th classes were obtained and then Universal Sampling technique was applied until the sample size reached to 400 adolescents from this sampling frame. WHO (International Physical Activity Questionnaire) IPAQ was employed as a data collection tool, comprising three parts. The socio-demographic variables were administered first, then barriers were assessed. After that, the extent of physical exertion evaluated. It permits categorization of respondents either Compliance/ Non-Compliance in response to participation in PA, comprising approximately one and a half hours per week of moderate level PA or about 75 minutes per week of high-level PA. This questionnaire assessed PA in MET-min/week and seated time, during past seven-day recollection of Physical Activity. Permission for the study was obtained from AFPGMI (Armed Forces Post Graduate Medical Institute) Ethical Review Board. Consent was obtained from participants in classroom. Anonymity and confidentiality assured. Participants had the choice to withdraw from research. At first step, weight and length of the sample were recorded, and the Body Mass Index (height in kg/m²) was computed. The participants were then asked to fill the questionnaire regarding barriers to physical activity. Data collected from the respondents was kept under lock and key. SPSS version-23 used, descriptive and inferential statistics were employed. Data were analyzed by frequencies, percentages mean and standard deviation were measured, and presented in the form of tables. The p-value < .05 considered as significant. The variable demonstrating gender, in our study, obtained a value (1 for female, 0 for male), educational mark (1 representing Primary/ Secondary Education, 2 for higher education, 0 denote varying variety), health observation about one self (1 if poor/ regular, 0 for other cases). Value subjected to each variable of perception of barriers such as, fear to get injury/ trauma, absence of social support, limited time, dearth of motivation, deficiency of energy, limited resources and skills - 0 shows no, 1 for yes and 3 for don't know. Whereas, levels concerning socioeconomical values as 1-low, 2 - middle, 3 - upper middle class, and 4 - Elite/ business class.

RESULTS

A sum of 400 respondent were involved in this research, out of a sum of 214 (53.5%) were male and 186 (46.5%) were female, 14 (3.5%) fathers were illiterate, 70 (17.5%) were Middle/ primary passed, 133 (33.3%) complete their Intermediate, there were 100 (25%) fathers who complete their bachelor's degree and only 83 (20.8%) were having Professional/Honors, 47 (11.8%) mothers were illiterate, 97 (24.3%) were Middle/primary passed, 112 (28%) complete their Intermediate, there were 89 (22.3%) mothers who complete their bachelor's degree and only 55 (13.8%) were having Professional/Honors, 18 (4.5%) of father were unemployed, 156 (39%) worked at Public sector, 159 (39.8%) were government employed and only 67 (16.8%) had own business, 77 (19.3%) respondents belong to Low Middle Class, 168 (42%) belong to Middle class, 99 (24.8%) belong to upper class and only 56 (14%) were belong Elite/Business Class, 278 (69.5%) respondent had primary education, 115 (28.7%) had secondary education and 7 (1.8%) had higher education, 6 (1.5%) respondent poor self-perception of health, 95 (23.8%) had fair, 230 (57.5%) good and 69 (17.3%) had very good self-perception of health as in table 1.

Table 1: Socioeconomic and Gender distribution

Variables	Frequency (%)
Gender	
Male	214(53.5)
Female	186(46.5)
Father's Educational status	
Illiterate	14(3.5)
Middle/Primary	70(17.5)
High school/Intermediate	133(33.3)
Graduate/Diploma	100(25)
Professional/Honors	83(20.8)
Mother's Educational status	
Illiterate	47(11.8)
Middle/Primary	97(24.3)
High school/Intermediate	112(28)
Graduate/Diploma	89(22.3)
Professional/Honors	55(13.8)
Occupation of Father	
Unemployed	18(4.5)
Private employee	156(39)
Govt. Employee	159(39.8)
Own Business	67(16.8)
Socio economical Level	
Low Middle Class (10,000-30,000)	77(19.3)
Middle	168(42)
Upper Middle Class (61,000-90,000)	99(24.8)
Elite/Business Class (>90,000)	56(14)
Educational Level	
Education Below 5 class	278(69.5)
Education Matric (10 class) or below	115(28.7)
Higher Education	7(1.8)

Self-Perception of Health	
Poor	6(1.5)
Fair	95(23.8)
Good	230(57.5)
Very Good	69(17.3)
Physical Activity Level	
Non-Compliant with the recommendation	253(63.2)
Compliant with the recommendation	147(36.8)

The mean Adolescent's Age was 15.00 ± 1.16 years ranging from 12 to 17 years, mean height was 58.05 ± 10.12 ranging from 43 inches to 140 inches, mean weight was 46.92 ± 10.84 range from 30 kg to 104 kg and mean BMI was 22.42 kg/m² ± 6.0 ranging from 12kg/m² to 42 kg/m² shown in Table 2.

Table 2: Mean ± SD of Demographic Variables

Variables	Mean ± SD	Minimum	Maximum
Child's Age	15.00 ± 1.16	12 Years	17 Years
Height	58.05 ± 10.12	43 Inches	140 Inches
Weight	46.92 ± 10.84	30 Kgs	104 Kgs
BMI	22.42 ± 6.0	12kg/m ²	42kg/m ²

Lack of motivation to perform physical activity was highly frequent obstacle as, 64.80% after that deficiency of time reported, as shown in figure 1.

Barriers to Physical Activity

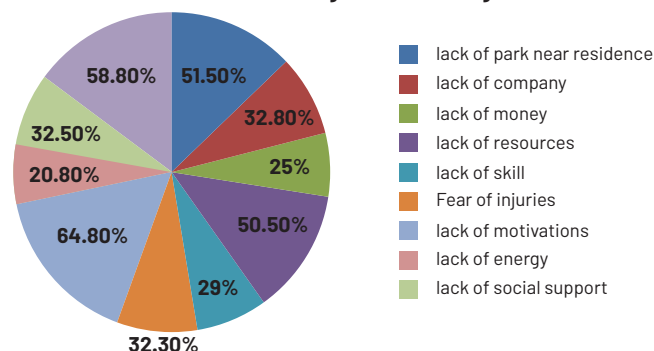


Figure:1 Barriers to Physical Activity

Table 3 reflects that females are at a greater probability of recognizing a time limit as an obstacle to PA [OR 2.17 (95% CI (1.45--3.23)]. Likewise, individuals from unsatisfactory economic status are at a greater chance about feeling absence of social welfare [OR 1.7 (95% CI (1.07--2.60)]. Regarding poor fair Self-perception of health are at a higher probability of feeling lack of social welfare [OR 2.68 (95% CI (1.68--4.28))] as barriers to PA.

Parameter	Shortage of time			Lack of Social Care			Lack of enthusiasm		
	β	p-value	OR (95% CI)	β	p-value	OR (95% CI)	β	p-value	OR (95% CI)
Gender									
Female	0.4	0.006	2.17(1.45-3.23)	-0.7	0.001	0.4(0.31-0.74)	0.08	0.7	1.1(0.67-1.77)
Male	0	-	1(-)	0	-	1(-)	0	-	1(-)
Socio Economics Status									
Low	-0.1	0.06	0.90(0.60-1.34)	0.5	0.024	1.7(1.07-2.60)	0.07	0.4	1.2(0.8-1.3)
High	-	-	-	-	-	-	-	-	-
Self-Awareness of health									
Unsatisfactory/ Satisfactory	- 0.18	0.421	0.83(0.52-1.31)	0.9	0.001	2.68(1.68-4.28)	0.2	0.01	1.2 (0.68-2.02)
Above Satisfactory / Average/ Good	0	-	1(-)	0	-	1(-)	0	-	1(-)
Self-Awareness of health									
not in accordance with the Guidance	-1.3	0.001	-0.25(0.16-0.39)	0.5	0.018	1.72(1.1-2.71)	-0.3	0.025	1.35(0.80-2.26)
Compliant with the recommendation	-0	-	1(-)	0	-	1(-)	-	-	1(-)
Constant	-0.02	0.6	0.8	0.4	0.02	.50	0.2	0.2	1.3

DISCUSSION

Our findings show females have a greater chance of seeing time shortage as an obstacle in performing PA [OR 2.17 (1.45--3.23)]. Likewise, individuals representing lower-socioeconomic strata at greater risk of seeing dearth of motivation, an obstacle for PA participation [OR 2.17(95% CI (1.42 - 3.32)]. Concerning poor /fair Self-perception of health are at a greater risk of recognizing dearth of resource [OR 4.25(95% CI (2.72--7.43)] as hurdles to PA. On the bases of our outcomes, clearly deduce that motivational deprivation, time deficiency, insufficient resources were reported barriers in adolescents of public school, Rawalpindi. Our results correspond as stated by Sharifi et al., whose discoveries revealed that most significant internal and external barriers for PA were dearth of time and lacking motivation [14]. Our findings are also match with a study conducted in Pakistani setup that shows, that out of total 35. study contributors 254 (72.6%) were discovered to be physically sedentary Lack of motivation, knowledge, skills, spouse and family support, accessibility to places for PA, availability of cost-effective facilities, and time were discovered to be significant barriers to PA. In particular, women living in extended families were found to be two times more likely to be inactive [15]. According to a Malaysian study, they belief that additional recreational activities with family and friends are more entertaining, in contrast to our findings, was the most frequently cited barrier, followed by weather, a lack of discipline, free time, money, and friends [16]. Similarly, nearly half of the studied audience said that discomfort and fatigue were the most common barriers to physical activity, followed by physical exertion and a lack of

time [8]. Besides, a qualitative study was led by Dwyer et al., to establish adolescent girls, perception of barriers was, lack of time, parental, teachers and peer influence, safety concern, inaccessibility of facilities and their cost; fondness for technology-related behavior; and competition issues [17]. In contrast, despite efforts to encourage adolescents to exercise more, physical activity rates have decreased over time, however, is the fact that adolescent girls contribute little less in PA in comparison to adolescent boys [18]. A recent study stated that alleged barriers to PA was greater amongst girls than boys that is, lack of motivation and lack of energy for exercise were reported by the girls [19]. According to a study, girls report different PA motivators and impediments than boys, gender and weight related bullying, male dominance, and concern for appearance or body shape [20]. Our findings also consistent with a study conducted in Karachi, Males studying in public facilities and had parents who encouraged participation in sports, were more physically active [21]. Our findings are also validated by the first meta-analysis in Pakistan, which included 14 different studies being conducted at school venue, through a sample size of 10,651. Results indicated 36.0% of weighted pooled prevalence of PA amongst Pakistani teenagers with an elevated heterogeneity as 99.28% [22].

CONCLUSIONS

Conclusively, factors foretelling the perception of hindrance to perform physical activity are largely low socioeconomic and lower educational levels due to their strong affinity with health behaviors that encourage to adopt a healthy lifestyle in adolescents.

Authors Contribution

Conceptualization: JK, FD

Methodology: SAR, DYS, FD, MN, RY

Formal Analysis: DYS, SF, AUR

Writing-review and editing: MFH, FD, NN

All authors have read and agreed to the published version of the manuscript

Conflicts of Interest

The authors declare no conflict of interest.

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