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Research Article

Prevalence and predictors of physical activity among female high school students in The Gambia: an institutional-based cross-sectional study

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Abstract: Background: Everyone, irrespective of age, sex, colour, ethnicity, or present overall fitness level, can benefit from regular exercise. To improve one's health, one must engage in regular physical activity. People with underlying illnesses like long-term impairment can benefit from regular physical activity at the individual level, especially young women. Thus, the current study aimed to assess the prevalence and determinants of physical activity among female school-aged adolescents in the West Coast Region of The Gambia. **Methods:** The present study used an institutional-based cross-sectional analytical study to collect quantitative data from 384 female high school students in The Gambia. The study used a content-validated, pretested structured questionnaire that consisted of both open and closed-ended questions on physical activity. The data were processed and analyzed using IBM SPSS version 26.0. Descriptive statistics and Chi-square and/or Fisher exact test were used with a p-value <0.15 for inclusion in the logistic regression model. Adjusted odds ratios (aORs) and 95% confidence intervals were calculated, while p-value <0.05 was considered for statistical significance. **Results:** The proportion of female students involved in physical activity was 37.5%. The mean age of students was 18.8 years with a standard deviation of 1.7 years. Factors such as female students between 17 – 20 years (aOR:3.05, 95% C.I. (1.807 – 5.138)), father never been to school (aOR: 2.82, 95% C.I. (1.495 – 5.334)), primary education (aOR: 2.15, 95% C.I. (1.027 – 4.493)), upper basic school (aOR: 2.31, 95% C.I. (1.055 – 5.074)) and science major students (aOR: 2.21, 95% C.I. (1.203 – 4.047)) had increased odds of involving in PA. Furthermore, students who knew that exercise would strengthen bones (aOR: 2.62, 95% C.I (1.444 – 4.739)), do a planned brisk walking (aOR: 19.16, 95% C.I. (6.698 – 54.811)), basketball/football (aOR: 29.76, 95% C.I. (10.004 – 88.512)) and skipping with rope (aOR: 29.15, 95% C.I. (9.726 – 87.333)) had increased odds to involved in PA after controlling for confounders. Other factors such as students whose mother never been to school (aOR: 0.31, 95% C.I. (0.140 – 0.674)), primary level (aOR: 0.25, 95% C.I. (0.123 – 0.518)), senior secondary level (aOR: 0.42, 95% C.I. (0.189 – 0.935)), nuclear family (aOR: 0.23, 95% C.I. (0.119 – 0.458)) and extended family (aOR: 0.45, 95% C.I. (0.225 – 0.915)) had reduced odds of involving in PA. **Conclusion:** There is low physical activity among female adolescents in schools. For this, it is imperative that suitable interventions be implemented to raise the level of physical activity among secondary school students. A future intervention for school-aged adolescents could benefit from these findings.

Keywords: Physical activity, Female students, Prevalence, The Gambia, High school

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1. Background

In order to improve one's health, one must engage in regular physical activity [1]. Everyone, irrespective of age, sex, colour, ethnicity, or present overall fitness level, can

benefit from regular exercise and sitting less. People with underlying illnesses like long-term impairment can benefit from regular physical activity at the individual level, as do young women [2]. There is increasing evidence that PA is associated with substantially better health outcomes than initially thought by researchers [3,4]. Furthermore, the benefits of PA can be felt quickly after even a small amount, which is an added bonus [2]. Many non-communicable diseases (NCDs) are less likely to occur if people engage in regular PA, such as cardiovascular health, muscle strength, and reduced feelings of anxiety and depression [5]. In addition to the health benefits of being more PA, social connection and community involvement can also be gained [6].

In 2016, 81 percent of 11-17-year-olds were insufficiently active [1]. WHO recommends at least 60 minutes of moderate to vigorous intensity physical activity every day for adolescent girls [3]. Around 1 in 3 women and 1 in 4 men do not get enough exercise to keep fit [4]. Globally, physical activity has remained stagnant since 2001.[7] About 1 in 4 adults does not fulfil global physical activity guidelines [4]. Global population activity could prevent up to 5 million deaths per year. Insufficiently active people face a 20%-30% higher risk of death than adequately active people. Over 80% of the world's adolescent population is inactive [1]. The publication of WHO's Global Action Plan on Physical Activity 2018-2030, covers four policy action areas and 20 specific policy recommendations and actions for Member States and international partners [5]. A safe and friendly atmosphere and more chances to assist people boost their levels of physical activity are called for in the global action plan [1,5]. The World Health Assembly agreed in 2018 to eliminate physical inactivity by 15% by 2030, in line with the SDGs [5]. This is an opportunity to refocus and reinvigorate efforts to promote physical exercise [8].

According to WHO, there is strong evidence that physical exercise is linked to a number of aspects that affect girls' health, such as their risk for diabetes and their ability to burn fat for energy [7]. Furthermore, regular physical activity may lower one's risk of developing long-term health problems later in life [9]. More and more people are dying prematurely from non-communicable diseases (NCDs), which have become the primary cause of death in poor and middle-income nations [4,10,11]. Because of the inactive populations around the globe, strong evidence shows that less engagement in physical activities can increase the risk of many adverse health conditions [8]. Type 2 diabetes and breast and colon cancers are among the most common NCDs in the globe and have been linked to shorter life expectancy [12]. However, lack of engagement in physical activities is also associated with a considerable economic burden, looking at the financial expenditure when one suffers from NCDs [5,13]. In addition, recent research has revealed that social inequality, particularly financial and educational inequality, the latter of which may influence activity levels and sedentary behavior, has been linked to physical activity [4,14,15].

Social cohesion, perceived benefits of physical activity, and attitudes toward age or gender limitations may also contribute [14]. Public green areas, safe walking places on the street, and the architecture of residential areas that may or may not incorporate walkable community paths and bicycle routes are examples of environmental factors [16]. At the individual level, one might become inactive due to sedentary behaviors and screen time viewing during leisure time, as revealed by studies [4,17]. This has caused people to engage more in eating junk food during the same period and developing weight, leading to serious non-communicable diseases [18,19]. A study indicated a slow decline in physical activity participation among adolescent school-going females as a result of a lack of guidelines and training on various physical activities and the minutes undertaken during activities that meet the WHO guidelines for PA [20].

Despite the growing evidence showing the importance and relevance of being physically fit, physical inactivity remains a concern worldwide [21]. Goal 3 of SDGs highlighted good health and wellbeing, which means promoting a healthy lifestyle, especially physical activity, is an essential aspect of preventing non-communicable

diseases in the form of engagement in PA [22,23]. A study in the Gambia indicated that two-fifths of adults were overweight/obese, with a higher obesity prevalence among women, including those in rural areas [24]. Furthermore, the fight against chronic conditions is ineffective since the problem is underestimated, emphasizing therapeutic approaches rather than preventative ones [25]. These burdens would have a negative impact on the attainment of our development indicators across the country.

It is envisaged that the outcome of the current study would be beneficial to the Ministry of Basic and Secondary Education in collaboration with the Ministry of Health and Ministry of Youth and Sport, to mainstream and integrate practical physical health exercise in the school curricular and outdoor sports activities for pupils especially females to promote adolescent female's health on physical activity. Therefore, the current study aims to assess the prevalence and determinants of physical activity among adolescent females in the west coast region of The Gambia.

2. Methods

2.1. Study design

The present study used an institutional-based cross-sectional analytical study to collect quantitative data from female high school students in The Gambia. Female students who were enrolled in the selected senior secondary schools and were present during the 2 weeks long data collection phase and consented to participate were recruited for the study. On the other side, those who were enrolled but absent during data collection were excluded from the study.

2.2. Study area

Sifoe Senior Secondary School is located in Sifoe community of Kombo South District, West Coast Region, Kombo South District is regarded as the catchment area of the school with total population of 108, 773 with a female population of 53, 782 [26]. In 2019, the school had a total student population of 1,055, out of which 449 were females, the rest were males. The school consists of Science, Art, and Commerce as major under their respective departments. Generally, most of the students in this school enrolled in the Arts and Commerce Department while Science registered the least number of enrolled students. The school is situated a kilometer toward the southern part of Sifoe community. The school environment is characterized by low and undulating swampy land, where women in the community are allowed to cultivate during the rainy season, most especially rice cultivation.

2.3. Sample size determination and selection

The single proportion formula was used to calculate the sample size; a prevalence of 87% based on a cross-sectional study carried out in Morocco in 2017 [27] was adapted.

$$n = pq(\frac{Z_{\propto/2}}{e})^2$$

At 95% confidence interval, *z*-value of alpha is (z= 1.96), p represents the prevalence of PA among school-aged adolescents from the adapted survey (p= 0.87), while q is expressed as 1-p (q= 0.13), e represents the margin of error expressed as (d= 0.05) and the total sample size of n= 174. However, the sample size was adjusted to 384 to improve the power of the study.

The study employed a stratified sampling design across the stratum (grade 10, 11 and 12) proportionated to the eligible study population for which the expected sample size was computed.

2.4. Data collection tools

The study used a content-validated, pretested structured questionnaire that was administered in person by trained research assistants. The questionnaire consisted of both open and closed-ended questions designed to elicit information regarding prevalence of physical activity, socio-demographic characteristics, knowledge on health benefits of PA, and its associated factors. The data collection tool was developed in English and translated into popular local languages (Mandinka, Fula and Wollof) that are widely spoken in Kombo South District. The face-to-face interview was conducted in either English or local languages best preferred by the students.

2.5. Study variables

2.5.1. Outcome variable

Physical activity was regarded as the outcome variable in this study. We adopted the WHO concept of PA as bodily movement produced by skeletal muscles that requires energy expenditure that could be light, moderate or vigorous-intense and mostly aerobic and done at least an average of 60 minutes per day or at least 3 days a week [1]. If the participants was involved in PA based on its operational concept as indicated above, were coded as Yes=1, and if they were not involved in PA, were coded as No=0.

2.5.2. Independent variables

Participants socio-demographic characteristics such as age, current grade level, parent's educational level, family-type, etc. and related factors on exercise patterns, types involved in, locations, frequency and knowledge about health benefits of PA. Participants' age, the highest level of education of their parents and peer influence were also determined.

2.6. Data analysis

The data were processed and analyzed using IBM SPSS version 26.0. A descriptive statistics were presented in frequencies and percentages. At bivariate level, Chi-square and/or Fisher exact test were used to examine association of PA with explanatory variables. Study variables with a p-value <0.15 at bivariate level were included in the logistic regression model. Adjusted odds ratios (aORs) and 95% confidence intervals were calculated, while p-value <0.05 was considered for statistical significance.

2.7. Ethical consideration

An ethical clearance was sought from the Director of School of Public Health and Gambia College Research Committee before the commencement of the study. Furthermore, permission was also sought from the administration of Sifoe Senior Secondary School before proceeding with the study. At school level, each students had to sign or thumbprint the consent form prior to their participation while the parents of those less than 18 years old signed or thumbprint on their child's behalf. Female students were recruited voluntarily and reserved the right to stop or withdraw from the study at any stage.

3. Results

A total of 384 high school female students were recruited in this study with a 100% response rate. The mean age of students was 18.8 years with a standard deviation of 1.7 years, as shown in Table 1. More than half of the participants (61.5%) were 17 - 20 years, and 35.4% were in grade 11. Regarding family income, about half of the participants earned between 2000 – 2999 dalasi (38.46 – 57.67 USD), while about 35.2% of their fathers had tertiary level of education and 23.7% of students' mothers had primary educational level. However, socio-demographic such as student's age (p=0.002), field of study (p=0.049), family types (p=0.001) and liking sports (p=0.014).

Table 1. Socio-demographic characteristic of high school girls in The Gambia

Variables	n (%)	Physical activity		p-value
		No n(%)	Yes n(%)	
Age of students (in years)				0.002*
16 & below	12(3.1	10(83.3)	2(16.7)	
17 - 20	236(61.5)	160(67.8)	76(32.2)	
21 - 23	136(35.4)	70(51.5)	66(48.5)	
Mean (±SD)	18.8 ±1.7			
Current level of grade				0.905
G10	120(31.3)	82(64.1)	46(35.9)	
G11	136(35.4)	74(61.7)	46(38.3)	
G12	128(33.3)	84(61.8)	52(38.2)	
Average family income (in Dalasi)**				0.661
Less than 2000	50(13.0)	34(68.0)	16(32.0)	
2000 - 2999	195(50.8)	119(61.0)	76(39.0)	
3000 & above	139(36.2)	87(62.6)	52(37.4)	
Father's educational level				0.061
Never attend	101(26.3)	69(68.3)	32(31.7)	
Primary school	55(14.3)	39(70.9)	16(29.1)	
Upper Basic School	44(11.5)	31(70.5)	13(29.5)	
Senior Secondary School	45(11.7)	26(57.8)	19(42.2)	
Tertiary Level	139(35.2)	75(54.0)	64(46.0)	
Mothers educational level				0.097
Never attended school	61(15.9)	34(55.7)	27(44.3)	
Primary school	91(23.7)	49(53.8)	42(46.2)	
Upper basic school	89(23.2)	61(68.5)	28(31.5)	
Senior secondary school	58(15.1)	36(62.1)	22(37.9)	
Tertiary level	85(22.1)	60(70.6)	25(29.4)	
Student's field of study				0.049*
Science	140(36.5)	96(68.6)	44(31.4)	
Commerce	117(30.5)	63(53.8)	54(46.2)	
Arts	127(33.1)	81(63.8)	46(36.2)	
Student's family-type currently living with				0.001*
Nuclear	157(40.9)	85(54.1)	72(45.9)	
Extended	131(34.1)	80(61.1)	51(38.9)	
Single parent	96(25.0)	75(78.1)	21(21.9)	
Do you like sport				
Yes	164(42.7)	91(55.5)	73(44.5)	0.014*
No	220(57.3)	149(67.7)	71(32.3)	
Do you like dancing				
Yes	189(49.2)	119(63.0)	70(37.0)	0.854
No	195(50.8)	121(62.1)	74(37.9)	
Do you like reading				
Yes	263(68.5)	164(62.4)	99(37.6)	0.932
No	121(31.5)	76(62.8)	45(37.7)	
Do you like watching TV				
Yes	265(69.0)	158(59.6)	107(40.0)	0.932
No	119(31.0)	82(68.9)	37(31.1)	
Do you like chatting with friends				
Yes	231(60.2)	144(62.3)	87(37.7)	0.936
No	153(39.8)	96(62.7)	57(37.3)	

** Statistical significance; **1USD = 52 GMD*

The proportion of female students involved in physical activity was 37.5%, as shown in Figure 1.

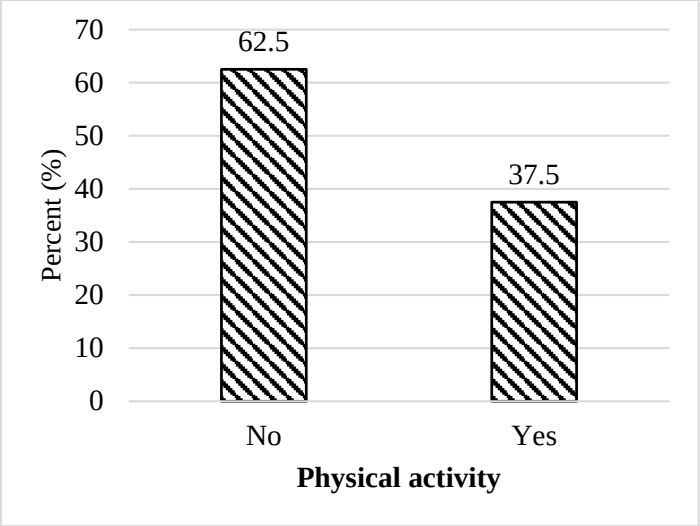

Figure 1. Prevalence of physical activity among high school girls in The Gambia

As shown in Table 2, 43.9% of students were involved in any forms of exercise at most twice a week. The majority of them in this category were not adequately involved in PA. Thus, participants' frequency of engaging in any forms of exercise were significant at p=0.017. In terms of participants opinions on the health benefit of exercise, opinions such as reduction of blood sugar (p=0.018), controlling of weight (p=0.001), strengthening of bones (p<0.001), and regulation of blood pressure (p=0.032) were found to be significant with their involvement in PA. Other factors such as parental influence (p=0.017), peer influence (p=0.002), involving in brisk walk (p<0.001), dancing (p<0.001), leisure cycling (p<0.001), jogging (p<0.001), leisure swimming (p<0.001), playing basketball/football (p<0.001) and skipping with rope (p<0.001) were statistically significant with their involvement in PA.

Table 2. Physical activity and related factors among high school students in The Gambia

Variables	n (%)	Physical activity		p-value
		No n(%)	Yes n(%)	
Frequency of engaging in any form of exercise				0.017*
Daily	50(19.8)	48(96.0)	2(4.0)	
At most 2 times a week	111(43.9)	98(88.3)	13(11.7)	
At least 3 times a week	69(27.3)	68(98.6)	1(1.4)	
Average time you spend on any form of exercise (minutes)				0.233
15 & below	28(11.3)	27(96.4)	1(3.6)	
16 - 53	174(70.2)	166(95.4)	8(4.6)	
54 - 90	46(18.5)	41(89.1)	5(10.9)	
Health benefits of exercise				
Strengthens the heart				0.434
Yes	151(39.3)	98(64.9)	53(35.1)	
No	233(60.7)	142(60.9)	91(39.1)	
Keeps arteries and veins clear				0.493
Yes	18648.4)	113(60.8)	73(39.2)	
No	198(51.6)	127(64.1)	71(35.9)	

Strengthens the lungs				0.634
Yes	174(45.3)	111(63.8)	63(36.2)	
No	210(54.7)	129(61.4)	81(38.6)	
Reduces blood sugar level				0.018*
Yes	219(57.0)	148(67.6)	71(32.4)	
No	165(43.0	92(55.8)	73(44.2)	
It controls weight				0.001*
Yes	216(56.3)	153(70.8)	63(29.2)	
No	168(43.8)	87(51.8)	81(48.2)	
Strengthens bones				<0.001*
Yes	230(59.9)	162(70.4)	68(29.6)	
No	154(40.1)	78(50.6)	76(49.4)	
Help prevents cancer				0.392
Yes	160(41.7)	96(60.0)	64(40.0)	
No	224(58.3)	144(64.3)	80(35.7)	
It regulates blood pressure				0.032*
Yes	211(54.9)	142(67.3)	69(32.7)	
No	173(45.1)	98(56.6)	75(43.4)	
Parental influence				0.017*
Never	100(26.0)	62(62.0)	38(38.0)	
Almost never	61(15.9)	31(50.9)	30(49.2)	
Sometimes	104(27.1)	67(64.4)	37(35.6)	
Often	53(13.8)	29(54.7)	24(45.3)	
Always	66(17.2)	51(78.5)	15(17.2)	
Peer influence				0.002*
Never	68(17.7)	36(52.9)	32(47.1)	
Almost never	60(15.6)	27(45.0)	33(55.0)	
Sometimes	102(26.6)	75(73.5)	27(26.5)	
Often	52(13.5)	37(71.2)	15(28.8)	
Always	102(26.6)	65(63.7)	37(36.3)	
Peer co-participation				0.126
Never	108(28.1)	68(63.0)	40(37.0)	
Almost never	48(12.5)	25(52.1)	23(47.9)	
Sometimes	91(23.7)	57(62.6)	34(37.4)	
Often	45(11.7)	24(53.3)	21(46.7)	
Always	92(24.0)	66(71.7)	26(28.3)	
Brisk walking				<0.001*
Yes	51(13.3)	46(90.2)	5(9.8)	
No	333(86.7)	194(58.3)	139(41.7)	
Dancing				<0.001*
Yes	140(36.5)	37(92.5	3(7.5)	
No	244(63.5)	203(59.0)	141(41.0)	
Leisure cycling				<0.001*
Yes	40(10.4)	37(92.5	3(7.5)	
No	344(89.6)	203(59.0)	141(41.0)	
Jogging				<0.001*
Yes	73(19.0)	73(100)	0(0.0)	
No	311(81.0)	167(53.7)	144(46.3)	
Leisure swimming				<0.001*
Yes	37(9.6)	37(100)	0(0.0)	
No	347(90.4)	203(58.5)	144(41.5)	
Basket/football				<0.001*

Yes	99(25.8)	95(96.0)	4(4.0)	
No	285(74.2)	145(50.9)	140(49.1)	
Skipping with rope				<0.001*
Yes	109(28.4)	105(96.3)	4(3.7)	
No	275(71.6)	135(49.1)	140(50.9)	

** Statistical significance*

Students in the age group 17 – 20 years were 3.05 times (aOR:3.05, 95% C.I. (1.807 – 5.138)) more likely to be involved in PA compared to those in 21-23 years of age after controlling for parents level of education, field of study, family-type and liking sports. Female students whose father never been to school (aOR: 2.82, 95% C.I. (1.495 – 5.334)), primary education (aOR: 2.15, 95% C.I. (1.027 – 4.493)) and upper basic school (aOR: 2.31, 95% C.I. (1.055 – 5.074)) had increased odds of involving in PA as opposed to those with tertiary level of education. Furthermore, students whose mother never been to school (aOR: 0.31, 95% C.I. (0.140 – 0.674)), primary level (aOR: 0.25, 95% C.I. (0.123 – 0.518)) and senior secondary level (aOR: 0.42, 95% C.I. (0.189 – 0.935)). Students that were science majors had increased odds (aOR: 2.21, 95% C.I. (1.203 – 4.047)) of involving in PA compared to Arts major. Participants likelihood of involving in PA decreases for those from the nuclear family (aOR: 0.23, 95% C.I. (0.119 – 0.458)) and extended family (aOR: 0.45, 95% C.I. (0.225 – 0.915)) when compared with those from single-parent family system after controlling for confounders as shown in Table 3.

Table 3. Socio-demographic predictors of physical activity among high school girls in the Gambia

Predictors	Adjusted Odds Ratio (aOR)	95% C.I. for aOR		p-value
		Lower	Upper	
Age of students (*Ref*: 21-23)				
16 & below	4.95	0.851	28.752	0.075
17 - 20	3.05	1.807	5.138	<0.001*
Father's educational level (Ref: Tertiary level)				
Never attended school	2.82	1.495	5.334	0.001*
Primary school	2.15	1.027	4.493	0.042*
Upper basic school	2.31	1.055	5.074	0.036*
Senior secondary school	1.54	0.71	3.315	0.276
Mother's educational level (Ref: Tertiary level)				
Never attended school	0.31	0.140	0.674	0.003*
Primary school	0.25	0.123	0.518	<0.001*
Upper basic school	0.90	0.432	1.86	0.769
Senior secondary school	0.42	0.189	0.935	0.034*
Student's field of study (Ref: Arts)				
Science	2.21	1.203	4.067	0.011*
Commerce	0.72	0.383	1.334	0.291
Student's family type currently staying with (Ref: Single parent)				
Nuclear	0.23	0.119	0.458	<0.001*
Extended	0.45	0.225	0.915	0.027*
Do you like sports (Ref: No)				
Yes	0.67	0.409	1.089	0.105

*Ref= Reference category; R^2= 17.3% - 23.6%; C.I= Confidence Interval; * statistical significance at p<0.05*

As shown in Table 4, students who knew that exercise would strengthen bones were 2.62 times (aOR: 2.62, 95% C.I (1.444 – 4.739)) more likely to be involved in PA than those

who do not know if exercise could strengthened bones. Female students that do a planned brisk walking (aOR: 19.16, 95% C.I. (6.698 – 54.811)), basketball/football (aOR: 29.76, 95% C.I. (10.004 – 88.512)) and skipping with rope (aOR: 29.15, 95% C.I. (9.726 – 87.333)) were more likely to involved in PA after controlling for confounders.

Table 4. Influence of selected factors on physical activity among high school girls in the Gambia

Predictors	Adjusted Odds Ratio (aOR)	95% C.I. for aOR		p-value
		Lower	Upper	
It reduces blood sugar levels (*Ref:* No)				
Yes	0.66	0.354	1.230	0.191
It controls weight (Ref: No)				
Yes	1.63	0.88	3.027	0.120
It strengthens bones (Ref: No)				
Yes	2.62	1.444	4.739	0.002*
Brisk walking (Ref: No)				
Yes	19.16	6.698	54.811	<0.001*
Basketball/football (Ref: No)				
Yes	29.76	10.004	88.512	<0.001*
Skipping with rope (Ref: No)				
Yes	29.15	9.726	87.333	<0.001*

Ref= Reference category; R^2= 41.6% - 56.7%; C.I= Confidence Interval; * statistical significance at p<0.05

4. Discussion

The study revealed that the prevalence of sufficient physical activity levels among high school girls was low. More than half of girls engaged in PA were between 17-20 years, with a mean age of 18.8 years. However, this finding is not in line with a study regarding global trends in insufficient PA levels among schooled-age adolescents (11-17). In contrast, it contradicts a study where girls' PA level was determined to be high at 84.7% in 2016 [28]. In addition, the current study revealed that girls' in grade 11 were more active compared to others in grad 10 and 12. Another study found that inactive pupils were more common than those who were active [29]. Including Buckworth et al. and Sullum et al., our study found that direct involvement in sports like football, basketball, rope skipping, and vigorous walking increased self-efficacy. Thus, self-efficacy-based interventions can be used to promote and maintain physical activity within this group [30,31].

Another study [32] refuted this finding where 81% of schooled-age youths (11-17 years), including girls, were insufficiently active. Therefore, there is a need to develop a comprehensive guideline on PA that aims to promote engagement into PA, especially targeting school-aged girls in grades 10 and 12. Thus, organized, planned, and coordinated physical activities in high schools will increase the overall participation of girls participation into PA. The reduction of adolescent girls' residences may likely be one explanation for their apparent decline in PA. Many adolescents spend most of their time in homes or classrooms that do not provide adequate opportunities for PA. Similarly, female teenagers may have limited opportunities to exercise in public, increasing the likelihood of a sedentary lifestyle. Overweight or obese and other sedentary lifestyle consequences (cardiovascular conditions, diabetes, etc.) may rise across females in the coming years [29].

This study revealed that about half of the participants earned between 2000-2999 dalasi (38.46-57.67 USD) more engaged in PA (39.0%). A possible explanation could be that organized, and well-planned PA requires investment, such as going to the gym and

other PA centers like park and recreational centers. The current study findings from the current study revealed that female students whose father had never been to school, primary education, and upper basic school had increased odds of involving in PA instead of those with tertiary level of education. This could be because the more parents moved from one educational level to another, the more engaged they became, thus, becoming less active. Therefore, children of such parents will tend to adopt such a lifestyle as well.

The current study further revealed that related factors such as parental influence and peer influence were significantly influencing PA among female adolescents. A study [33] has revealed modelling (rendition of conduct of an individual who is regarded as an example) peer influence in adolescents' physical activity. Furthermore, the families' present physical activity has been found to be a prototype for children's PA levels [33]. Furthermore, in terms of student's family-type currently living with, the study investigated that PA involvement among girls was significant with increased participation from those in a nuclear family and a decline in PA among those in extended and single families. This could be as a result of the fact that in extended families, girls are more involved in domestic chores. Another study found that students cited lack of safe and accessible areas for PA as well as the unsupportive family as major impediments [34,35].

However, looking at the importance of peer co-participation in terms of engaging in PA, the current study observed no statistical significant association with peer co-participation as a factor to participants' involvement in PA. Thus, the need to raise awareness of the benefits and importance of engagement in PA remains pivotal. This will further bridge the gap of social induction in communities and increase the thorough participation of girls in exercise.

5. Study Limitations

This study has some limitations: first, it only included females; therefore, there was no chance to compare physical activity between genders. Second, the subjects were selected from a specific geographic area. Therefore the results may not be generalizable. The data also rely on self-reported physical and associated characteristics. Despite using validated surveys, there may be some over-reporting of PA.

6. Conclusion

With this study's findings in mind, there was low physical activity among female adolescents in schools. For this, it is imperative that suitable interventions be implemented to raise the level of PA among secondary school students. A future intervention for school-aged adolescents could benefit from these findings. It is strongly recommended that several other strategies should be strengthened for increasing PA: implementing alternative behaviors like walking, establishing a regular exercise schedule and participating in team/group exercises with friends and peers; understanding oneself; and recognizing the positive as well as negative aspects of PA. Furthermore, future studies should look at other related factors for adolescent girls' participation in PA, such as socio-cultural factors and cultural stereotypes. Policies and guidelines will help increase girls participation in PA and promote the general PA level in communities since related factors are multifaceted.

Declarations

Ethics approval and consent to participate

The study protocol was reviewed, and ethical clearance was issued by the Gambia College's Research Committee for the study. All methods were carried out in accordance with relevant guidelines and regulations. Participation in the study was entirely voluntary, and only those that accepted to be part of the study were recruited. Each participant (18 & above years old) signed a

written informed consent form, and the parents of those less than 18 years old who accepted to be enrolled in the study.

Consent for publication

Not applicable

Availability of data and materials

The data used to support the findings of this study are available upon reasonable request from the corresponding author.

Competing interest

No conflicts of interest was disclosed.

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Authors' contributions

AB, BJ & MB conceptualized the study, prepared the study design and reviewed literature. BJ undertook fieldwork and performed data input. AB performed data analysis, wrote the results, discussed the findings, and wrote the initial draft of the manuscript. All authors critically reviewed the manuscript for its intellectual content. All authors read and approved the final manuscript. AB had the final responsibility to submit for publication.

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