

# Prevalence of After School Physical Activity Among Senior High School Students in Ada

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## Abstract

The purpose of the study was to explore the prevalence of After School Physical Activity (ASPA) among senior high school students in Ada. A descriptive survey design was used. A total of 726 senior high school students responded to a modified version of the Crocker (1997) Physical Activity (PA) Questionnaire with an alpha of .80 was used for data collection. Frequencies, percentages and Chi Square Test of independence were used to analyse the data. Result indicated that 76% of the participants had low intensity level of ASPA participation. Also, 79% of the students had high knowledge on the benefits of physical activity. Major perceived barrier to ASPA participation was fear of injury (80%). There was a significant association between the knowledge level of the PA benefits and intensity level of ASPA participation. Males' students participated in a higher intensity level of ASPA than the female. On the whole, the intensity level of participation in ASPA by senior high school students in Ada is low. Senior high school students in Ada are encouraged to engage in variety of moderate to vigorous PA regularly.

## 1. Introduction

Adolescence provides a real opportunity to influence attitudes and participation rates positively towards physical activity [PA] (Woods, Tannehill, Quinlan, Moyna, & Walsh, 2010). World Health Organisation [WHO], (2010) refers to PA as all movements in everyday life, including work, recreation, exercise, and sporting activities. In general, PA is any body movement that works your muscles which requires more energy than resting. Students engage in a variety of activities during after-school hours, including PA, classes, homework, electronic media and other sedentary pursuits (Atkin, Gorely, Biddle, Marshall, & Cameron, 2008; Stanley, Ridley, & Olds, 2011). Emphasis has been placed in awareness programmes on the benefits of physical activities to encourage participation in regular PA as a means of promoting good health (Myers, 2007). According to the American Heart Association (2005), a sedentary lifestyle has been identified as a primary risk factor for heart disease. Also, a sedentary lifestyle is a major underlying cause of death, disease and disability with about 2 million deaths every year attributable to physical inactivity. Warburton et al. (2006) found that physical inactivity doubles the risk of developing cardiovascular diseases, Type 2 diabetes and obesity. Furthermore, physical inactivity has increased the risk of colon and breast cancer, hypertension, lipid disorders, osteoporosis, depression and anxiety (WHO, 2010).

However, according to Hardman and Stensel (2009) appropriate participation in some form of physical activity assists young people to develop healthy musculoskeletal tissues, a healthy cardiovascular system and neuromuscular awareness. Participating in PA also assists in maintaining a healthy bodyweight and has been shown to have psychological benefits such as an improvement in control over anxiety and depression (WHO, 2011). Bechtel (1992) concluded also that participation in regular physical activity or sports is associated with less substance abuse and supports positive feelings towards school attendance. It is also known to reduce healthcare costs, increases productivity and renders better performance in sports and recreational activities (WHO, 2008).

In spite of these findings suggesting the benefits and importance of regular PA, studies indicate that a quarter of the children in the USA do not meet the recommended level of PA participation (Centers for Disease Control and Prevention [CDC], 2008). Similarly, in Ghana only 13.1% of adolescents have been reported to have adequate PA, with an average of at least 60 minutes per day (MOH, 2009). Adolescents spend long hours in school. Thus, schools tend to be a good venue to promote PA participation. School-based PE intervention, although enjoying some success in promoting children's PA (McMurray, Harrell, Bangdiwala, Bradley, Deng, & Levine, 2002; Rudolf, Sahota, Barth, & Walker, 2001), was pressured to reduce the school time allocated to PE (DuBose, Mayo, Gibson, Green, Hill, & Jacobsen, 2008). Furthermore, adolescents have low PA during school hours (Johns, & Ha, 1999). After-school hours are considered critical for adolescents' PA. Trudeau and Shephard 2005 stated that an ideal channel for promoting adolescents PA was through after-school programmes. In addition, Pate, Stevens, Pratt, Sallis, Schmitz and Webber (2006) concluded that this period is one of the largest blocks of discretionary time in an adolescent's day. After-school period is described as a critical hour and activities within this period represents the overall PA level of young people (Hager, 2006; Mota, Santos, Guerra, & Ribeiro, 2003). Furthermore, adolescents engage in more PA during after-school period (Prochaska, Sallis, Griffith, & Douglas, 2002; Sirard, Riner, McIver, & Pate, 2005).

Data on levels of PA of adolescents and students at all levels in Ghana are scarce; hence the need for a nationally developed physical fitness test for students at all levels (MOH, 2009). Among Ghanaian Junior High School students aged 12-15 years surveyed as part of a global school health survey in 2007, only 13.1% reported that they were physically active for a total of at least 60 minutes per day on all 7 days during the past 7 days [boys – 13.8%, girls – 12.6%] (Owusu, 2007). In contrast, 27.4% of the students reported spending three or more hours per day during a typical or usual day sitting and watching television, playing computer games, talking with friends, or doing other sitting activities. The survey found that one in five students never participated in After School Physical Activity (ASPA) in school. There is lack of emphasis on PE in schools and schools are failure to adhere to the recommended 80 minutes of PE per week (MOH, 2009). These findings indicated the need for more in-depth analysis of opportunities to be physically active, such as ASPA, and the potential health benefits derived from them.

## 2. Statement of the Problem

Physical Activity forms an integral part of a healthy living and has been associated with multiple health benefits for adolescents (Burdette, & Whitaker, 2005; Twisk, 2001). The health benefits include improved bone and muscle strength, improved self-esteem and concentration, weight control, improved mood, and improved cardiovascular health (CDC, 2008). Also, PA and sports play positive roles in youth development, including improved academic achievement, higher self-esteem, fewer behavioral problems, and better psychosocial (Larson, & Seepersad, 2003; Mahoney, Larson, & Eccles, 2005). To achieve health benefits related to PA, it has been recommended that adolescents should accumulate at least one hour of Moderate to Vigorous Physical Activity (MVPA) each day (Department of Health and Ageing, 2004).

The after-school context has been identified as one setting that can be targeted to increase PA in adolescents. According to Atkin et al. (2008), a significant portion of adolescents PA occurs during the hours after school. Studies have also shown that after-school programmes contribute up to one-third of an adolescent's recommended daily physical activity (Trost, Rosenkranz, & Dzewaltowski, 2008), and positively affect physical fitness, body composition, and blood lipids (Beets, Beighle, Erwin, & Huberty, 2009). However, many adolescents experience a number of limitations during this period and are unable to use ASPA opportunities. In Ghana, little is known about ASPA, the content of ASPA, the levels of participation and the possible health benefits of ASPA participation. Based on the observation and a glance through literature, there is a need to investigate the prevalence, the content and the potentials of regular ASPA participation among Senior High Schools (SHS).

## 3. Research Questions

The following questions guided the study:

1. Which types of PA are available to SHS students in Ada?
2. What is the students' knowledge level of the benefits of regular PA participation in Ada?
3. What are the perceived barriers of ASPA participation among students in Ada?
4. What is the relationship between knowledge level of PA benefits and ASPA participation level among students in Ada?

## 4. Method

### 4.1 Research Design

Descriptive survey design was considered appropriate to be used. A descriptive survey was employed for the study to obtain quantitative data from participants for analysis since the research is temporal and would be conducted within a limited time frame. Therefore, the choice of this design seemed appropriate to describe the prevalence, the content and participation level of ASPA.

### 4.2 Population

The population for this study includes all students in the three Senior High Schools (SHSs) in Ada. The total estimated population for the study is 4,842 students (Ada East and West District Education Statistical Records, 2017).

**Table 1:** Breakdown of Estimated Population

School	Boys	Girls	Total
Ada Senior High School	1134	1000	2134
Ada Technical Institute	700	167	867
Ada Senior High Technical School	947	894	1841
<b>Grand Total</b>	<b>2781</b>	<b>2061</b>	<b>4842</b>

#### *4.3 Sample and Sampling Procedures*

The sample size of the study was made up of 726 participants. Krejcie and Morgan (1970) table for determining sample size was used to justify the sample size stated above in the three senior high schools. They noted that as the population increases the sample size increases at a diminishing rate and remain constant at slightly more than 380 cases. The sample involved students in SHS 1 to SHS 3. The sample was obtained using multi-stage sampling. A combination of proportional quota sampling and convenience sampling techniques were used to select 726 participants. The various schools were put into strata (boys and girls). Using the proportionate sampling by size technique (PSST) on the assumption that 15 percent of an accessible population is representative enough for a study (Dunn, 2001). Therefore, 170 boys and 150 girls from Ada SHS, 105 boys and 25 girls from Ada Technical Institute and 142 boys and 134 girls from Ada Senior High Technical were selected from each stratum. Thus, 320 participants from Ada SHS, 130 participants from Ada Technical Institute and 276 participants from Ada Senior High Technical were selected from each school. Finally, convenience sampling method was used to recruit the required number of 726 participants for the study.

#### *4.4 Instrument for Data Collection*

The main instrument for the study was a modified version of the Physical Activity Questionnaire (Youth Activity Profile - YAP) for Adolescents designed for use in schools by Crocker (1997). It is noteworthy that some aspects of the item were modified in this study. First, some common physical activities in the locality were added (e.g. canoeing), which made the activities list more appropriate and applicable. Second, some foreign physical activities which were not applicable were eliminated (e.g. snowboarding). The modifications improved the validity of the instrument. The modified questionnaire resulted in a 38 close-ended items divided into two parts (Part 1 and Part 2). Part 1 dealt with the demographics information of the participants which had five questions in all. This comprised of gender, age, level of study, residential status and institution. Part 2 was divided into four sections (i.e. Section A, B, C, D).

Section A had one item which focused on the types of ASPA available. It provides a physical activity checklist which has 26 physical activities asking the participants how many times they do each in the past seven days after school.

Section B consisted of six questions that examine their physical activity level in different settings at certain periods in the last seven days (immediately after school and weekends). Respondents were asked the number of days they did walking/biking from school and any physical activity (not including walking) after school, as well as the number of hours and minutes per day they did the activities in the last 7 days respectively.

Section C constituted 15 items on the knowledge level (KL) of the benefits of physical activity participation. Participants were to rate their responses on a 4-point Likert-type scale from Strongly Agree = 4, Agree = 3, Disagree = 2 and Strongly Disagree = 1 for positive questions. Questions 12, 13 and 20 were negatively worded and their scores were reversed.

Section D consisted of 11 items that assessed the barriers to ASPA participation among students. Participants were asked to indicate their reasons why they do not participate regularly in PA by ticking the box against the barriers given.

#### *4.5 Data Collection Procedures*

Three PE tutors, one from each school were trained as research assistants in administering and collection of the questionnaire. The questionnaire was administered by the researchers and the three research assistants' to students who were available and willing to participate in the study until the required sample size was reached. Two weeks were used to administer and collect the questionnaire in each of the schools. Six weeks were used in the administration and collection of the questionnaire in the three schools.

#### *4.6 Data Processing and Analysis*

Data cleaning was important to get collected data into appropriate order before analysis began. The data was coded and statistically analyzed by the researchers. Predictive analysis software of SPSS windows version 20.0 was used for the analysis. Research question one which looked at the types of physical activity available was analyzed using descriptive statistics of frequencies and percentages. All the items were put into five categories ("No" activity being 1, 1-2 times being 2, 3-4 times being 3, 5-6 times being 4 and "7 times or more" being 5). These categories were further grouped into two; YES (Available) and NO (Not Available). YES is category 2, 3, 4 and 5 put together and NO is category 1. The frequency and percentage of responses were then used to rank the types of PAs. A percentage score of 50 and above indicates availability (Available) and 49 and below shows no availability (Not Available) of the PA.

Research question two which looked at knowledge levels of the benefits of physical activity was analyzed using descriptive statistics of frequencies and percentages. The responses were put into two groups; correct and incorrect. Frequency percentage of 50 and above of responses indicate correct and 49 and below indicate

incorrect. In this study, overall percentage score of 50 and above indicates high knowledge and 49 and below indicate low knowledge.

Research question three which explored the barriers that influence ASPA participation of students was analyzed using frequencies and percentages. The frequencies of responses were tallied and the scores were aggregated into percentages. Frequency and percentage of responses were then used to rank the barriers of ASPA participation in ascending order (from highest to lowest). A percentage score of 70 and above indicates major, percentage score from 69-50, and 49-0 represents medium and minor barriers respectively. Research question four was analyzed using Chi-Square Test of independence.

## 5. Results and Discussion

The purpose of the study was to explore the prevalence of ASPA among senior high school students in Ada with regards to the types, level of participation and perceived barriers of ASPA. This section provides the results of the data collected in regard to respondents' demographics, types of after school PA available, knowledge level of the benefits of PA and the perceived barriers of ASPA participation.

### Research Question One: Which Types of PA are Available to SHS Students in Ada?

Frequency and percentage distributions were calculated to determine the types of PA that is most participated in by senior high school students in Ada.

**Table 2:** Percentage Ranking of Types of Physical Activities

Types of Physical Activities	YES	Percent (%)
Sweeping (Indoor)	664	91.5
Sweeping (Outdoor)	620	85.4
Walking for exercise	619	85.3
Weeding	516	71.1
Jogging or running	505	69.6
Scrubbing	482	66.4
Dancing	475	65.4
Playing Handball	248	64.2
Bicycling	342	57.1
Playing football / soccer	401	55.2
Mopping	372	51.2
Athletics	307	42.3
Push-ups/Situps/Jumping jacks	269	37.1
Skipping	240	33.9
Playing Basketball	223	33.7
Playing Volleyball	244	33.2
Ampe	240	33.1
Weight lifting	238	32.8
Swimming	212	29.2
Gardening	195	26.9
Playing Table Tennis	190	26.2
Aerobics	181	24.9
Mowing	141	19.4
Netball	116	16.0
Hockey	77	10.6
Canoeing	61	8.4

The data in Table 2 revealed that the five most prevalent types of PA available for students were indoor sweeping 664 (92%), outdoor sweeping 620 (85%), walking for exercise 619 (85%), weeding 516 (71%) and jogging/running 505 (70%). The least available types of ASPA were canoeing 61 (8%) and hockey 77 (11%).

These results showed that majority of students were participating in indoor sweeping and outdoor sweeping physical activity. In Ghana senior high schools, indoor and outdoor sweeping are mandatory chores both in the schools and in some homes. Even though majority preferred sweeping, the intensity level of sweeping is so low that many would not derive any health benefit from participating in them. Besides, it required less time and energy. Furthermore, the weeding was one of the ASPA participated in by students. This might be due to nature of the environment and the time of season. The area is marshy area dominated with a lot of green grasses. The study was conducted in the raining season which might have accounted for the availability of weeding as type of PA in Ada. Also, students do not participate in weeding deliberately as PA but they do as a chore sparingly. This level of participation would make many of the students meet the daily recommended moderate to vigorous physical activity. According to WHO (2010) global standard, to derive health benefits from healthy physical

activity you have to engage in at least 150 minutes of moderate-intensity activity per week, 75 minutes of vigorous-intensity activity per week, or an equivalent combination of moderate - and vigorous-intensity activity. Sweeping and weeding do not meet any of these criteria, hence students would not gain any health benefits from participating in them.

The finding also indicated that a lot of students walk for exercise or jog/run. This could be due to the safe paths and pedestrian walkways in the district. Also, there are no attacks on travelers (safe environment) in Ada. In addition, most of the students participated in them because they are free play and enjoyable activities. Adolescents participate in activities that are noncompetitive. They prefer not to be forced to compete and win. They enjoy activities that they choose to participate freely in it. According to MacPhail et al. (2003), many different types of physical activity encouraged participation in children. They do different types of activity during walking, jogging or running. These include, stretching flexibility and endurance exercisessor. Mulvihill, Rivers and Aggleton (2000) indicated that enjoyment was also crucial to PA participation. Another plausible explanation to this finding might be due to the number of Keep-Fit clubs in and round the schools. Students join these clubs to jog every Saturday or Sunday. They may participate for two main reasons. One reason is that it offers them the opportunity to meet their friends (social interaction with peers). And the other reason is for health benefits of running. Smith (1998) found that joggers were motivated by the health benefits of running and the increased status afforded to them by non-exercisers who saw them as fit and healthy. Also, some students walk, jog or run to control body weight and to acquire athletic stature. Although they engaged in jogging at least once a week, their accumulated days and minutes per week is not enough to reap any health benefits. This contradicts McArdle et al., (2007) who suggested that regular physical activities of at least 5 days per week may reduce body fat.

Deriving health benefits from walking, jogging or running is dicey. It would depend on the intensity level and duration. To recap WHO (2010) recommendations, you need to engage in at least 150 minutes of moderate-intensity activity per week, 75 minutes of vigorous-intensity activity per week, or an equivalent combination of moderate- and vigorous-intensity activity to derive health benefits from PA. In spite of that fact that majority prefer walking they did not meet the recommended PA guidelines of more than 60 minutes MVPA daily (MOH, 2009). There is low intensity level of PA participation among students in Ada. This was in support of the WHO (2010) report which stated that the recommended amount of more than 60 minutes MVPA daily is not being met by large numbers of adolescents.

However, Hockey and Canoeing were type of PA not available to students. Ada is surrounded by river Volta and the Atlantic ocean. Therefore it was expected that canoeing should have being one of the preferred type of PA rather it was the least. The reason could have been that majority of the students do not know how to swim. There have been some reported cases of students getting drown in the Volta lake. Another reason accounting for low participation in canoeing could be that most of the senior high schools in Ada are boarding schools therefore students are not permitted to go to the river side. Hockey is not play in any of the three senior high schools in Ada. It was due to lack of facilities and equipment. According to Allison et al. (2005), the structural determinant to physical inactivity among adolescents is lack of facilities. Another reason could be that the game of hockey is not popular in Ada unlike soccer. Most teachers do not know the rules of hockey leading to nonexistence of the game in Ada. Knowledge and understanding of the types of activities adolescents perform during unique periods will assist in determining whether or not they are engaging in health enhancing PA. This can direct the appropriate design of interventions to increase physical activity and decrease sedentary time.

### **Research Question Two: What is the Students' Knowledge Level of the Benefits of Regular PA Participation in Ada?**

The research question was introduced to find out the students' knowledge of the benefits of regular PA participation in Ada. Frequency and percentage distributions were used to find out the knowledge level of the benefits of regular PA participation among senior high school students in Ada. The result is presented in Table 3.



**Table 3:** Category of Students' responses on Knowledge of PA Benefits

Item	Correct	Incorrect
Weight control	694	32
Prevents heart diseases	636	90
Affects taste of food	580	146
Reduces feeling of depression and anxiety	573	153
Converts fat to muscle	558	168
Doesn't increase risk of premature death	544	182
Affects one's eye colour	564	162
Improve health	688	38
Increase self-esteem	598	128
Shortens one's life span	576	150
Doesn't increase the risk of and anxiety developing depression	468	258
Reduces stress	628	98
Not a major part of leisure time	367	359
Enhances muscles performance and prolonged work	639	87
Key to sleeping better	463	263
<b>TOTAL</b>	<b>8576(79%)</b>	<b>2314(21%)</b>

The result showed that 574 (79%) of students' had high knowledge and 152 (21%) of students had low knowledge of benefits of PA. Therefore, senior high school students in Ada can be said to have high knowledge level on the benefits of PA.

The probable reason for this finding could be that PE is taught from primary school to the senior high school level. Knowledge in PE provides students with physical fitness concepts and knowledge of different types of physical exercise. Knowledge on the benefits of regular PA is important because lack of knowledge portends doom. According to Ajala (2005), to change your own behavior you must know what to do (knowledgeable). Therefore, students' having good knowledge on the benefits of PAs implies that there is a positive step towards active lifestyle. Latham (1999) suggested that the key to success is to equip people with knowledge and skills. However, the findings of the study showed that in spite of the high knowledge level of the participants, their physical activity level is low. Hence, having knowledge about the benefits of PA is not enough to enhance PA level of SHS students at Ada. Trost, Owen, and Bauman (2002) confirmed that knowledge related to health and physical activity had a weak association with physical activity.

Also, Morrow et al. (2004) concluded that physical activity knowledge alone was not sufficient enough to elicit a behavior. However, it provided educators with an understanding of the public's physical activity knowledge that could be helpful in developing health promotion and physical activity interventions.

### Research Question Three: What are the Perceived Barriers of ASPA Participation among Students in Ada?

Frequency and percentage distributions were used to find the perceived barriers to ASPA participation of senior high school students in Ada.

**Table 4:** Percentage Ranking of Barriers of ASPA Participation among Students

Item	Frequency	%
Fear of injury	578	79.6
Lack of time	537	73.9
High academic work/load	526	72.4
Inadequate facilities	524	72.1
Lack of fundamental skills	522	71.9
Working for money after school	474	65.2
No Friends/peer support	429	59.0
No family support	387	53.3
Distance from facilities	365	50.2
Lack of enjoyment	316	43.5
Discouragement by other teachers	285	39.2

The results in table 4 indicated that the five major perceived barriers to ASPA participation were Fear of injury 578 (80%), Lack of time 537 (74%), High academic work/load 526 (72%), Inadequate facilities 524 (72%) and Lack of fundamental skills 522 (72%). However, lack of enjoyment 316 (44%) and discouragement by other teachers 285 (39%) were the minor barriers reported by students for non-participation in ASPA.

The reason for the majority of students selecting fear of injury could be that if they get injured it may affect their academic performance. When students miss lessons or class test due to injury, they do not have the opportunity to cover up. The teachers involve do not arrange for the injury victims to take that same test which

goes to affect their cumulative assessments. Remedial classes for students who missed class for genuine reasons are not available in SHS in Ada. School authorities should look at this phenomenon critically. Also, the parents of the injured students would not be happy with them. Most parents have the notion that their wards are in the school to learn. In addition, students who are injured performing sporting activity for the schools are neglected by the school authorities. These injured athletes become the burden of the PE master. Woods et al. (2010) found that the main reasons for non-participation in PA were being injured, time pressure and feelings of incompetence. Also, Canadian Fitness and Lifestyle Research Institute (1996) reported that feeling uncomfortable, lack of skill, and fear of injury are some of the moderate barriers to physical activity.

The result of the study also indicated that lack of time (74%) was another major barrier to students' low participating in ASPA. Lack of time is consistently reported as a major constraint on participation in physical activity. The reason could be that the academic workload was not allowing students' time to participate in ASPA.

According to Bauman et al. 2002, people perceive that they have less discretionary time for exercise and sporting activities. Many authors such as Allison et al. (2005), Daskapan et al. (2006) and Sutjaho et al. (2004) found that lack of time was the most important external barrier to physical activity. The finding of this study is not different from Menon (2008) who reported that lack of time (94%) was an important barrier to ASPA.

Finding of this study showed that 72% of the participants cited high academic work/load as one of the major barrier to ASPA participation. The school system placed more value on academic work than anything else. For quest of good results, there are a lot of extra classes being organized mostly after school. This development could be as a result of the academic calendar being reduced from four years to three years. The students are burden with a lot of homework and project works. The finding of the study corresponded that of Daskapan et al. (2006) who found a busy lesson schedule was the most commonly cited barrier among the students. In addition, Zunft et al. (1999) found that work or study commitments were the most frequently cited barriers for not increasing participation in PA in young adults.

Finding from this study also revealed that 72% of the students cited inadequate facilities as a major barrier to their ASPA participation. In most of the senior high schools at Ada, facilities for basketball, volleyball, handball, hockey and gymnasium are not available. The school authority improvised these facilities whenever they going to have intramural games for selection of athletes into the school teams. After the games, the places are not managed again. Some schools even borrowed equipment from town to organize these games and return them after the games. Therefore, students who want to continue to practice or use the place cannot do so. In support of this finding, Allison et al. (2005) stated that lack of facilities was a structural determinant to physical inactivity among adolescent. This hinders the free play of students thereby resulting in the low level of ASPA participation.

The finding revealed lack of fundamental skills (72%) as barrier to low participation level. The reason could be that the teaching of PE in the schools was ineffective. The basic skills in most of the sports are introduced and learnt during PE lessons. Students develop confidence in their chosen games in PE classes. However, less attention is given to PE because it is non-examinable subject. According to Woods et al. (2010) less time is given to PE thereby students' participation in PE drops significantly in the second cycle school. The situation led to students not getting the enough time to develop their skills in their area of PA. The carryover effect is seen in the low performance in ASPA. Women's Sport and Fitness Foundation report (2011) found that not liking the activities they do in PE, too much competition in PE and not feeling they had the skills to do well in sports were the reasons for being off PA. According to the Canadian Fitness and Lifestyle Research Institute (CFLRI) (1996), lack of skill and fear of injury are some of the moderate barriers to PA. In addition, McCarthy and Jones (2007) concluded that one of the main non enjoyment sources of sport came from demonstrating a lack of competence.

Individual and external perceived barriers affected students of Ada most and social support, environmental and cultural factors affected them less. All of these factors need to be addressed in order to increase PA rates across the whole population and at the subpopulation level. The understanding of why students are not taking part in ASPA is crucial in order to develop strategies to increase participation levels.

#### **Research Question Four: What is the Relationship between Knowledge Level of PA Benefits and Intensity Level of ASPA Participation among Students in Ada?**

The relationship between knowledge level of the PA benefits and the level of intensity of ASPA participation was investigated using Chi-Square Test of independence. There was significant association between knowledge level of PA benefits and intensity level of ASPA participation [ $\chi^2(1, N = 726) = 5.102, p = .02$ ]. A further analysis was done to check the strength of association. The result showed that there was a weak negative association between the two variables.

**Table 5:** Association between Knowledge Level of PA Benefits and Intensity Level of ASPA Participation (N = 726)

		ASPA Participation level				$\chi^2$	df	Sig.
		Low		Moderate				
		F	%	F	%			
Knowledge level	Low	105	69	47	78	5.102	1	.024
	High	447	31	127	22			

Finding of the study indicated that high knowledge of level of PA benefits was associated with low intensity level of ASPA participation. A possible explanation is that the participants being students might have given responses to please the researcher. The participants are literate. Although they have knowledge on the benefits of PA because about 79% of them score high on knowledge, it does not necessarily translates into participation in ASPA. Sheelham et al. (2003), point out that knowledge acquired does not necessarily lead to participation in PA. Similarly, Trost, Owen, and Bauman (2002), who found from their study that knowledge related to health benefits and physical activity had a poor association with physical activity. This they attributed to over-reporting of physical activity levels. Also, the finding of this study may be attributed to lack of fundamental skills and experience in most PA because Morrow et al. (2004) concluded that physical activity knowledge alone was not sufficient enough to elicit behaviour. Furthermore, Nahas, Goldfine, and Collins (2003) also found that the knowledge of these benefits alone has not motivated the population to adopt and maintain regular physical activity. The maintenance of physical activity to retain its benefits is a complex process, reflective of multiple influences that include interpersonal, intrapersonal and environmental variables. Consequently, the finding is in contrast with those of Hopman et al., 2005 which showed that knowledge about the benefits of exercise is one of the crucial factors that positively affect individuals' physical activity participation. The difference could be attributed to the quality of ASPA available and individuals' motivation hence knowledge of PA benefits is not sufficient for ASPA participation.

## 6. Conclusions

There was low intensity level of participation in ASPA by senior high school students in Ada. This may have negative consequences for their current and future health. However, students are knowledgeable on the benefits of PA and could recognize the benefits. It is possible that they would also like to benefit from taking part. The various barriers that hindered participation in ASPA by senior high school students in Ada should be addressed so as to promote participation in ASPA.

## 7. Recommendations

Based on the conclusion of the study, the following recommendations were drawn;

1. Senior high school students in Ada should engage in variety of moderate to vigorous PA regularly. Engaging in different types of challenging ASPA remove boredom and the full benefits of ASPA can be realized.
2. Senior high school students in Ada should engage in ASPAs based around fun, enjoyment and just getting physically active. Competition should be avoided in ASPA, this will prevent injury.
3. Senior high school students who have low level of participation in ASPA should strive to increase their level of participation in ASPA
4. Senior high school students in Ada should encourage each to participate in regular PA by forming sporting groups
5. Facilities should be built in the schools and in the community to enable students' participate in variety of ASPA
6. In order for ASPA to become more effective, it should become part of school policy alongside PE in the promotion of PA for SHS students.

## References

- Allison, K. R., Dwyer, J. M., Goldenberg, E., Fein, A., Yoshida, K. K., & Boutillier, M. (2005). Barriers to participation, and suggestions for increasing participation. *Adolescence*, 40, 155-170.
- American Heart Association. (2005). *Medical/scientific statement on exercise: Benefits and recommendations for physical activity for all Americans*, 112, 71-75.
- Atkin, A. J., Gorely, T., Biddle, S. J. H., Marshall, S. J., & Cameron, N. (2008). Critical Hours: Physical activity and sedentary behavior of adolescents after school. *Pediatric Exercise Science*, 20, 446-456.
- Bauman, A., Bellew, B., Vita, P., Brown, W., & Owen, N. (2002). *Getting Australia active: Towards better practice for the promotion of physical activity*. National Public Health Partnership, Melbourne.
- Bechtel, L. J. (1992). An analysis of the relationship among selected attitudinal, demographic and behavioural variables and the self-reported alcohol use behaviours of Pennsylvania adolescents. *Journal Alcohol, Drug*



- and Addict*, 37, 83-93.
- Beets, M. W., Beighle, A., Erwin, H. E., & Huberty, J. L. (2009). After-school program impact on physical activity and fitness: A meta-analysis. *American Journal of Preventive Medicine*, 36, 527–537.
- Burdette, H. L., & Whitaker, R. C. (2005). Resurrecting free play in young children: Looking beyond fitness and fatness to attention, affiliation, and affect. *Archives Pediatric Adolescents Medicine*, 159(1), 46–50
- Canadian Fitness and Lifestyle Research Institute. (1996, June). *Sources of progress in prevention* (Issue Brief No. 1205-7029). Ontario: Canada.
- Centers for Disease Control and Prevention. (2008). *Youth risk behaviour surveillance – United States 2007*. Surveillance summaries. Morbidity and Mortality Weekly Report 57, No.SS-4.
- Crocker, P. R. E. (1997). Measuring general levels of physical activity: Preliminary evidence for the Physical Activity Questionnaire for Older Children. *Medicine and Science in Sports and Exercise*, 29(10), 1344-1349.
- Daskapan, A., Tuzun, E. H., & Eker, L. (2006). Perceived barriers to physical activity in university students. *Journal of Sports Science and Medicine*, 5, 615-620.
- Department of Health and Ageing. (2004). *Australia's physical activity recommendations for 5-12 year olds*. Canberra, Commonwealth of Australia.
- DuBose, K. D., Mayo, M. S., Gibson, C. A., Green, J. L., Hill, J. O., & Jacobsen, D. J. (2008). Physical activity across the curriculum (PAAC): Rationale and design. *Contemporary Clinical Trials*, 29, 83-93.
- Dunn, D. S. (2001). *Statistics and data analysis for the behavioural sciences* (1<sup>st</sup> ed.). New York: McGraw-Hill Co.
- Hager, R. L. (2006). Television viewing and physical activity in children. *The Journal of Adolescent Health*, 39, 656-661.
- Hardman, A. E., & Stensel, D. J. (2009). *Physical activity and health: The evidence explained* (2<sup>nd</sup> ed.). London: Routledge.
- Hopman-Rock, M., Borghouts, J., & Leurs, M. (2005). Determinants of participation in a health education and exercise program on television. *Preventive Medicine*, 41(1), 232-239.
- Johns, D., & Ha, A. S. (1999). Home and recess physical activity of Hong Kong children. *Research Quarterly for Exercise and Sport*, 70, 319-323.
- Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and psychological Measurement*, 30, 607 – 610.
- Larson, R., & Seepersad, S. (2003). Adolescents' leisure time in the United States: Partying, sports, and the American experiment. In: S. Verma, R. Larson (Eds.). *New directions for child and adolescent development: Examining adolescent leisure time across cultures: Developmental opportunities and risks*. San Francisco: Jossey-Bass.
- Latham, B. D. (1999). *Promoting physical activity: A guide to community action*. Champaign, IL: Human Kinetics.
- MacPhail, A., & Halbert, J. (2005). The implementation of a revised physical education syllabus in Ireland: Circumstances, rewards and costs. *European Physical Education Review*, 11(3), 287-308.
- Mahoney, J. L., Larson, R. W., & Eccles, J. S. (2005). *Organized activities as contexts of development: Extracurricular activities, after-school and community programs* (Eds.). Mahwah, N J: Erlbaum.
- McArdle, W. D., Katch, F. I., & Katch, V. L. (2007). *Exercise physiology: Energy, nutrition, and human performance* (6<sup>th</sup> ed.). London, Lippincott Williams and Wilkins.
- McCarthy, P. J., & Jones, M. V. (2007). A qualitative study of sport enjoyment in the sampling years. *The Sport Psychologist*, 21, 400-416.
- McMurray, R. G., Harrell, J. S., Bangdiwala, S. I., Bradley, C. B., Deng, S., & Levine, A. (2002). A school-based intervention can reduce body fat and blood pressure in young adolescents. *Journal of Adolescent Health*, 31, 125-32.
- Menon, S. (2008). *Determinants of Physical Activity among Young Sedentary Adults*. Unpublished manuscript, Department of Kinesiology, State University of New York, Cortland.
- Ministry of Health [MOH]. (2009). *Dietary and physical activity guidelines for Ghana*: Yamens Press Ltd.
- Morrow, K., & Jackson, B. F. (2004). American adults' knowledge of exercise recommendations. *Exercise Sport*, 75(3), 231-237.
- Mota, J. P., Santos, S., Guerra, J. C., & Ribeiro, J. D. (2003). Patterns of daily physical activity during school days in children and adolescents. *American Journal of Human Biology*, 15, 547-553.
- Mulvihill, C., Rivers, K., & Aggleton, P. (2000). Views of young and adult people toward physical activity: Determinants and barriers to involvement. *Health Education*, 100, 190-199.
- Myers, A. K. (2007). *Exercise: introduction*. In *Encarta Encyclopedia 2003*. [www.encyarta.msn.com](http://www.encyarta.msn.com).
- Nahas, M. V., Goldfine, B. B., & Collins, M. A. (2003). Determinants of physical activity in adolescents and

- young adults: The basis for high school and college physical education to promote active lifestyles. *Physical Educator*, 60(1), 42-56.
- Owusu, A. (2007). *Global school-based student health survey: Ghana 2007 fact sheet*: CDC.
- Pate, R. R., Stevens, J., Pratt, C., Sallis, J. F., Schmitz, K. H., & Webber, L. S. (2006). Objectively measured physical activity in sixth-grade girls. *Archives of Pediatrics and Adolescent Medicine*, 160, 1262-1268.
- Prochaska, J. J., Sallis, J. F., Griffith, B., & Douglas, J. (2002). Physical activity levels of Barbadian youth and comparison to a US sample. *International Journal of Behavioral Medicine*, 9, 360-372.
- Rudolf, C. J., Sahota, S., Barth, J. H., & Walker, J. (2001). Increasing prevalence of obesity in primary school children: Cohort study. *British Medical Journal*, 322, 1094-1095.
- Sirard, J. R., Riner, W. F., McIver, K. L., & Pate, R. R. (2005). Physical activity and active commuting to elementary school. *Medicine and Science in Sports and Exercise*, 37, 2062-2069.
- Smith, S. L. (1998). Athletes, runners, and joggers: Participant-group dynamics in a sport of individuals. *Sociology of Sport Journal*, 15(2), 174-192.
- Stanley, R. M., Ridley, K., & Olds, T. S. (2011). The type and prevalence of activities performed by Australian children during the lunchtime and after school periods. *Journal Science and Medicine Sport*, 14, 227-232.
- Trost, S. G., Owen, N. N., Bauman, A. E., Sallis, J. F., & Brown, W. W. (2002). Correlates of adults' participation in physical activity: Review and update. *Medicine & Science in Sports & Exercise*, 34(12), 1996-2001.
- Trost, S. G., Rosenkranz, R. R., & Dzewaltowski, D. (2008). Physical activity levels among children attending after-school programs. *Medicine & Science in Sports & Exercise*, 40, 622-629.
- Trudeau, F., & Shepherd, R. J. (2005). Contribution of school programs to physical activity levels and attitudes in children and adults. *Sports Medicine*, 25, 89-105.
- Twisk, J. W. R. (2001). Physical activity guidelines for children and adolescents: a critical review. *Sports Medicine*, 31(8), 617-627.
- Warburton, D. E., Nicol, C. W., & Bredin, S. S. (2006). Health benefits of physical activity: The evidence. *Canadian Medical Association Journal*, 174(6), 801-809.
- Women's Sport & Fitness Foundation. (2011). *Changing the game for girl's survey*. Institute of Youth Sport, Loughborough University.
- Woods, C. B., Tannehill, D., Quinlan, A., Moyna, N., & Walsh, J. (2010). *The Children's Sport Participation and Physical Activity Study (CSPPA) research report no.1*. School of Health and Human Performance, Dublin City University and the Irish Sports Council, Dublin, Ireland.
- World Health Organisation. (2010). *Global recommendations on physical activity for health*. Geneva, Switzerland: WHO Document Production Services.
- World Health Organisation. (2011). *Global recommendations on physical activity for health*. Geneva: WHO.
- World Health organization. (2008). *Physical activity and young people*. Retrieved from [www.who.int.org](http://www.who.int.org).
- Zunft, H. J., Friebe, D., Seppelt, B., Widhalm, K., Winter, A. M., Almeida, M. D., & Gibney, M. (1999). Perceived benefits and barriers to physical activity in a nationally representative sample in the European Union. *Public Health Nutrition*, 2, 153-160.