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Abstract

Physical activity for an individual is a strong means for prevention of diseases and for nations, a cost-effective method to improve public health across the population. A decline in physical activity of youth has however been noted in various world regions. Schools present unique opportunities to provide time, facilities and guidance for young people to participate in physical activity. The aim of this study is to determine the patterns of physical activity participation among high school girls and their perceived social support for physical activity in the school environment in Kigali, Rwanda. Three hundred and fifty (350) learners from six schools participated in the study. The mean age of the study sample was 16.06. The majority of learners did not meet the number of days required for moderate days of physical activity (66%) and for vigorous days of physical activity (70.9%). Overall the study sample responded negatively when asked about support for physical activity from Physical Education (PE) teachers, other teachers and boys at school. Teachers in general and PE teachers specifically thus need to be more aware of learners perceptions of their support for physical activity. It could be argued that if learners perceive teachers to be more supportive of physical activity, their participation in physical activity could increase. Continuous education including the benefits of and the required levels of physical activity is suggested for both PE and other teachers.

Keywords: physical activity, perceived support, school environment

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Introduction

Physical activity is essential for our health and well-being. Appropriate physical activity constitutes one of the major components of a healthy lifestyle, along with a healthy diet, tobacco free life and avoidance of other substances harmful to health. Physical activity for an individual is a strong means for prevention of diseases and for nations, a cost-effective method to improve public health across the population (WHO, 2003). Encouraging increased physical activity is one way to aid young people in achieving a balance energy intake and expenditure and establishing healthy behaviour that will continue into adulthood. In addition to contributing to weight control, physical activity helps young people to build and

maintain healthy bones and muscles and contributes to psychological well-being (Troiano, 1995). There is scientific evidence showing that habitual physical activity provides people of all ages with considerable physical, social and mental gains and well-being throughout their life span (WHO, 2003a; Fox & Boutcher, 2000).

Recently a decline in physical activity has been noted in various world regions. Researchers have been alerted to this trend in Europe (Verloigne, Van Lippevelde, Maes, Brug & De Bourdeaudhuij, 2012), USA (Perera, Frei, Frei, Bobe, 2015) and Canada (Health Canada, 2007). A decline in physical activity among adolescents as they age has also been noted in Africa. Phillips (2006) found that the high school learners in grade 9 were more likely than those in grade 10 to participate in physical activity in a study among female high school learners in South Africa. A study done among high school going adolescents in Kenya also revealed that older learners were significantly more likely to be classified as more sedentary than younger learners (Frantz, Phillips, Matheri & Kibet, 2011). Although there is little recent information about physical activity participation among female adolescents in Rwanda, there is evidence of physical inactivity among other populations in Rwanda. Lela and Frantz (2012) reported low levels of physical activity among nurses in a military hospital in Rwanda, while Kagwiza, Phillips and Struthers (2005) found that working adults were living sedentary lifestyles.

Perera et al. (2015) noted that children spend most of their hours awake at school and many of them do not have the opportunity to be physically active outside of school. Dobbins, Husson, DeCorby and LaRocca (2013) also asserted that schools as an institution has the most influence on children during their first two decades of life. Schools therefore present unique opportunities to provide time, facilities and guidance for young people to participate in physical activity. Naylor et al. (2015) argue that effective physical activity interventions are important when delivered in settings where children learn. They are of the opinion that in addition to improved health other benefits such as improved classroom management, enhanced cognitive function and self-concept are also evident in the school environment. Dobbins et al. (2013) also stated that physical activity in schools has been shown to be indirectly associated with academic achievement. Beets, Weaver and Moore (2015) stated that examples of school-based efforts to promote physical activity include the allocation of time for physical education, time for recess physical activity and classroom physical activity breaks. It has also become evident that teachers are concerned about children's levels of physical activity (Perera et al., 2015; Hammerschmidt, Tackett, Golzynski & Golzynski, 2011).

Researchers are in agreement that any opportunity for physical activity during the day would be valuable towards achieving public health goals (Beets et al.,

2015; Perera et al., 2015). It has also become evident that information regarding how to maximise physical activity during the day for children will greatly assist the field of youth physical activity promotion (Beets et al., 2015; Carson et al., 2014). This study therefore aims to investigate the perceived social support for support for physical activity in the school environment in Kigali, Rwanda.

Methodology

Research setting

The study was conducted at secondary schools in Kigali, the capital city of the Republic of Rwanda. The city of Kigali is divided in three districts. The statistics of the Rwandan Ministry of Education (Rwandan Ministry of Education, 2009), estimate the number of secondary schools catering for the age range of 13-18 years old to be twelve for Nyarugenge and Kicukiro districts and 16 for the Gasabo district. Two schools from each of the 3 districts were randomly selected to participate in the study. It is estimated that there are three thousand six hundred (3600) learners at the six selected schools. Of the total number of learners at each school, about forty percent (40%) were female. Using Yamane's formula Israel (1992), the calculated sample size was approximately participants. To accommodate for learners or parents not giving consent to participate in the study, 390 learners were approached to make sure the minimum number of learners are included in the study. Therefore the preliminary sample consisted of approximately 390 learners. A stratified sampling technique was used to recruit the participants from each school. The stratum was school year of study. Three hundred and fifty (350) learners returned their completed questionnaires and signed consent forms. Thus the overall response rate was 89.7%. The final sample therefore consisted of three hundred and fifty (350) learners.

Permission and ethical clearance for the study was obtained from the Research Committee at the University of the Western Cape, South Africa, the Ministry of Education in Rwanda, the district authorities and relevant school authorities. A self-administered questionnaire was administered to the learners. The self-administered questionnaire consisted of three sections: The first section requested for information regarding demographic data such as age, school/grade, and race/ethnicity, parental level of education, height and weight. The second section assessed the support that learners get from teachers, other girls and boys at school for physical activity. This scale was adapted from the Physical Education Program Improvement and Self-study (NASPE, 2001). The original developers of this scale performed confirmatory factor analyses using structural equation modelling and indicated 2 distinct subscales: perceived support for girls' Physical Activity from teachers ($n = 2$ items, reliability = 0.59) and from boys ($n = 3$ items, reliability = 0.56). Perceived support from other girls was assessed by an additional item ($kappa = .34$). Participants rated each item on a 5-

point Likert-type scale ranging from disagree a lot (1) to agree a lot (5) (Birnbaum, Evenson & Motl, 2005). The last section assessed the levels of physical activity. This was assessed by the Modifiable Adolescent Physical Activity Questionnaire (Aaron, Kriska, Cauley, Metz & LaPorte, 1995; Aaron, Kriska & Dearwater, 1993). It consisted of 4 items. Participants were requested to describe their physical activity, in how many days they were involved in moderate (light exercises) or vigorous activity (hard exercises) during the last seven days in and outside school. In a recent systematic review of Helmerhorst, Brage, Warren, Besson and Ekulund (2012) they reported that most of the Physical Activity Questionnaires included in their review, including the Modifiable Adolescent Physical Activity Questionnaire showed acceptable to good reliability.

The questionnaire was translated from English to French since these were the two basic languages used in secondary schools in Rwanda. It was then back translated into English from French by an independent translator to make sure that the content of the questionnaire was translated accurately. A pilot study was done to check for clarity of the instrument prior to data collection. The pilot study was conducted among 15 students who were conveniently selected from the selected schools and who did not participate in the study. Thereafter, a focus group was also done with 5 of these students to ensure the stability and consistency of the respondents' answers. No changes to the questionnaires were required. The results from the pilot study indicated that the adopted questionnaire could measure the high school girls' perceptions regarding environmental and social support for physical activity in Kigali.

Data analysis

Descriptive statistics were used to analyse demographic data and to calculate the mean scores of each scale. Inferential statistics were employed to determine differences between groups. T-test was used to explore statistically significant differences between groups (independent t-test). Bivariate correlations between social support for physical activity variables and moderate physical activity were measured. Alpha level was set at 0.05.

Results

The mean age of the study sample was 16.06 (SD= 1.4). Most of the participants (30%) were in their fifth year of study. The majority of the participants (61.7%) reported their father to be the head of the household of which 83.1% were employed. Most of the participants' (53.1%) head of household's educational level was at post-secondary level. According to the participants' number of days of vigorous and moderate days of physical activity, the learners were classified as either physically active or sedentary. The participant's level of physical

activity was determined according to the World Health Organisation guidelines which recommended that adolescents should engage in at least 30 minutes of moderate-intensity physical activity 5 days per week or 20 minutes of vigorous-intensity physical activity 3 days per week. Physical activity can also be accumulated throughout the day in blocks as short as 10 minutes (WHO, 2009). The majority of learners in both categories did not meet the number of days required for moderate days of physical activity (66%) and for vigorous days of physical activity (70.9%). Table 1 provides the data per grade.

Table 1: Mean number of days of vigorous and moderate physical activity per week (n=350)

Variables	VPA		MPA	
	Mean	(SD)	Mean	(SD)
Grade 2	2.53	1.64	3.31	2.31
Grade 3	2.00	1.54	3.52	2.41
Grade 5	2.16	1.59	3.60	2.36
Grade 6	1.87	1.48	3.32	2.34

Perceptions regarding support for physical activity from teachers, boys and other girls at school were assessed. The minimum value for each response was 1 for disagree a lot and the maximum value was 5 for agree a lot. For each statement, participants rated agreement on a 5-point Likert-type scale, anchored by disagree a lot (1) and agree a lot (5). Items were scored so that a lower score corresponds with a more positive perception in the case of support for physical activity from teachers and boys. A higher score for perceived support for physical activity from girls indicated a more positive perception. Overall the study sample responded negatively when asked about support for physical activity from PE teachers and other teachers at school.

The mean and standard deviation score for support from PE teachers were 3.87 ± 1.20 and range was 1.0 – 5.0 while the mean and standard deviation score for support for physical activity from other teachers were 3.82 ± 1.14 . The range was 1.0 – 5.0.

Participants were requested to respond regarding the perceived support offered from boys and girls regarding physical activity at school. Overall the study sample responded negatively when asked about support from boys at school. The study sample responded positively when asked about support from other girls at school.

Discussion

Physical activity is considered as a cornerstone in the management of chronic diseases of lifestyle for its valuable health benefits. However, literature confirmed that not only does physical activity have numerous health benefits but there is also an increasing decline of levels of physical activity among various groups including school going youth (Naylor et al., 2015; Perera, 2015). This study highlighted the reason for concern in Rwanda too as the majority of the learners did not meet required number of days engaging in either moderate or vigorous physical activity to gain the desired health benefits. It has also been reported that activity participation decreases with age (Caspersen, Pereira & Curran, 2000). Normally, age increase with increasing grade, therefore suggesting that the present study illustrated the decrease in physical activity levels with increasing age. The decrease in physical activity participation among girls with age should be taken seriously when designing or implementing intervention programmes to encourage physical activity among young girls.

Learners have the opportunity at school to be physically active. In addition, researchers have shown that adolescents' perceptions of support for physical activity at school could thus be very important as they are at school for a big portion of their day (Grieser et al., 2008). The overall sample of the present study, however, responded negatively to support from PE teachers, other teachers and boys. Furthermore learners in lower grades perceived more support from teachers at school than those in higher grades. These findings are of great concern as in higher grades they tend to be less physically active than those in lower grades. Teachers in general and PE teachers specifically thus need to be more aware of learners' perceptions of their support for physical activity. It could be argued that if learners perceive teachers to be more supportive of physical activity, their participation in physical activity could increase.

This study provides useful information for intervention programmes to increase the levels of physical activity among sedentary/inactive high school learners in Rwanda. Naylor et al. (2015) drew attention to the fact that one of the factors influencing effective school-based physical activity interventions was a supportive school climate. It is clear that female high school learners should be given enough support from both PE and other teachers to encourage them to be more physically active. Continuous education including the benefits of and the required levels of physical activity is suggested for both PE and other teachers. Saunders et al. (2012) highlighted the convincing evidence that physical activity interventions most effective are those that incorporate both teacher and school level activities. However, researchers have cautioned that other stakeholders especially parents, are also important for providing physical activity opportunities outside of school (Perera et al., 2015; Dobbins et al., 2013). Therefore, a combination of school- and community-based physical activity

interventions is important. Researchers have cautioned that the research area of implementation of school-based physical activity interventions is in its infancy and therefore we need to better understand the many factors that play a role in the physical activity of school-going children.

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