

## Factors influencing participation in physical activity among 11-13 year-old school children in the Western Cape, South Africa

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### Abstract

South African adolescents, in general, are physically inactive, and obesity amongst the youth at schools has become an alarming trend. This study aimed to identify the predisposing, reinforcing and enabling factors of physical activity and to determine the strongest predictors of physical activity participation among adolescents in the Western Cape. A cross-sectional, descriptive research design was used based on quantitative research methods. A sample of 348 learners, both male and female aged 11 to 13 years, from grades 4 to 7, were conveniently selected from two primary schools in the Metropole South Education District of the Western Cape. Data collection was conducted using the Children's Physical Activity Correlates Questionnaire. Descriptive and inferential statistics were used to analyse the data. Pearson correlation and regression analysis were performed to determine the relationship between the variables and to determine the strongest predictors of physical activity, respectively. The results showed that parental influence ( $r = 0.236$ ,  $p < 0.01$ ), peer influence ( $r = 0.012$ ,  $p < 0.05$ ), perceived physical activity self-efficacy ( $r = 0.212$ ,  $p < 0.05$ ) and perceived physical activity competence ( $r = 0.192$ ,  $p < 0.05$ ) were all significantly strong predictors of physical activity, with parental influence being the strongest predictor overall. This suggests that adolescents are more likely to participate in physical activity if they receive support from their parents. Parental support includes parents participating with adolescents, attending physical activity team games, buying physical activity equipment, giving permission for after school activities and providing transport to physical activity venues. Parental encouragement for adolescents includes positive reinforcement and continuous encouragement while adolescents are physically active.

### Introduction

Adolescence is a crucial period of life during which important shifts in psychosocial behaviour occur and many future health behaviours are established (Mohamadian & Ghannae Aran, 2014). It provides an ideal opportunity to implement interventions that encourage positive health behaviours, especially in physical activity (PA) participation (Mackintosh, Knowles, Ridgers, Stuart & Fairclough, 2011). Physical activity is defined as any bodily movement produced by skeletal muscles that requires energy expenditure. Since multiple factors influence an adolescent's participation in PA, it is important for health educators to understand the significant predictors of children's PA participation (King Ogletree, Fetro, Brown & Partrich, 2011; Belton, O' Brien, Meegan, Woods & Issartel, 2014; Marques, Peralta & Santos, 2014). The Youth Physical Activity Promotional Model

(YPAPM) has been adopted as a framework for understanding the inter-connectedness of the influences (predictors) on youth PA (Welk, 1999). Components of the model include psychological attributes (predisposing factors), social influences (reinforcing factors), and environmental influences (enablers) (Chen, Welk & Joens-Matre, 2014). The predictors of PA are categorised under three factor-groups of PA participation, namely, predisposing, reinforcing and enabling factors (King Ogletree, Fetro, Brown & Partrich, 2011; Belton, O'Brien, Meegan, Woods & Issartel, 2014; Methala et al., 2014). Van Hout, Young, Bassett and Hooft (2013) stated that: "The majority of South African youth are in the developmental phase, where critical decisions are being taken on key life transitions, including education, work, lifestyle, participation in society, and other psychosocial areas".

Despite the increase in literature regarding the determinants of PA, our understanding of the influences on youth PA, particularly in South Africa, remains clouded (Dollman & Lewis, 2009; WHO, 2011; Chen et al., 2014). Adolescents are exposed to a variety of influential elements which lead them to engage in either healthy or unhealthy lifestyle patterns (Trost, Pate, Sallis, Freedson, Taylor & Dowda, 2003; Reddy et al., 2010). The support from parents and peers is vital for their PA participation. Therefore, the aim of this study was to identify the factors that predict PA among adolescents and to determine the strongest predictors of PA participation in this group.

## **Methodology**

The present study utilised a cross-sectional, descriptive research design based on quantitative research methods (Kumar, Sisodia & Ramapuram, 2013). Ethical consent was obtained to conduct the study from the Senate Research and Ethics Committee, UWC (Ethics clearance number 12/4/26), local department of education district offices and the schools in the Western Cape. A conveniently selected sample of male and female adolescents aged 11 to 13 years were drawn from two English medium primary schools in the Metropole South Education District (MSED) of the Western Cape Department of Education, South Africa. The sample was drawn from grades 4 to 7, and the total number of learners enrolled at both schools was 2 580. A total of 600 participants were recruited to participate in this study. All learners were eligible to participate, however, those who failed to obtain written parental consent or did not assent personally to partaking in the study were excluded. The final number of participants in the study was 348.

## **Data collection**

Data was collected about the predisposing, reinforcing and enabling factors to determine the predictors of PA by using the Children's Physical Activity Correlates Questionnaire (CPACQ). The questionnaire featured scales with questions related to the predisposing, reinforcing and enabling factors of PA. The questions were answered on a five point Likert scale with participants selecting the answer most to their liking. The questionnaire had a demographic section related to age, gender and school grade.

The validity and reliability of CPACQ in measuring the predictors of PA in adolescents were determined in previous studies. Understanding PA psycho-social correlates in

youth is challenging due to the inherent changes in activity patterns, activity preferences, and social norms that occur during the normal developmental transition from childhood into adolescence (Chen et al., 2014). Schaben et al. (2006) examined possible age-related differences in PA correlates using CPACQ. The results revealed that high school youth had lower levels of PA and lower levels of psychosocial correlates than middle school youth. Parental influence accounted for about 15% of the variance in PA, while the predisposing factors (perceived competence, attraction to PA) accounted for 20% and 17% of the variance for middle and high school students, respectively. CPACQ has similar predictive validity across the age range (Schaben et al., 2006). CPACQ offers the potential to help understand the factors that influence PA behaviour during the transition from childhood into adolescence (Schaben et al., 2006).

Dollman and Lewis (2009) tested CPACQ in a sample of South Australians aged 10–15 years). It was postulated that domains derived from CPACQ such as: parental influence ('reinforcing'); predisposing factors ('is it worth it?') and perceived competence ('am I able?') found that internal consistency for these three scales was acceptable i.e., 'reinforcing',  $\alpha = 0.74$ ; 'is it worth it?',  $\alpha = 0.84$ ; and 'am I able?',  $\alpha = 0.77$ . Physical activity self-efficacy is defined as “beliefs in one’s capabilities to organise and execute the course of action required to produce given attainments (Schaben et al., 2006). CPACQ predisposing scale was developed to assess attraction to PA perceived PA competence and PA self- efficacy (Schaben et al., 2006). CPACQ used five of six items for the perceived competence. The scale was developed to measure predisposing factors of PA in adolescents (Chen et al., 2014). Additional research with the tool showed it to be valid and reliable for use with primary and high school students (Schaben et al., 2006; Wattanasit, 2009; Chen et al., 2014). The scale was found to be reliable in previous studies that provided support that it is a valid measure of PA in children (Schaben et al., 2006; King et al., 2011; Chen et al., 2014).

Reinforcing factors, specifically parental influence was assessed with 18 items. Parental influence, parental role-modelling and encouragement that were assessed, reflected the efforts made by parents to support, and encourage their children to participate in PA. The development and psychometrics of these scales have been described in previous work (Schaben et al., 2006; Chen et al., 2014). The composite measure, computed as the mean of the 18 items was found in previous research to have good reliability and validity (Schaben et al., 2006).

The enabling factors included the environmental factors that assessed access to sport equipment, access to facilities and safety considerations. CPACQ scoring for each factor item was scored on a 5-point Likert scale. The lowest score (1) was anchored at sedentary activities and the highest score (5) for very active activities. The environmental scores were determined by using the numerical score assigned for responses 1 and 2. The average of 3 and 4 (with 4 being reverse coded) was computed to determine the “perceived safety of the neighbourhood”. Previous research in elementary school youth revealed good internal consistency at 0.80 for the three sub-scales (Welk, 1999). The environmental scale accounted for over 30% of the variance in PA. The scale was utilised

effectively in assessing middle school and high school youth, and is a useful tool for research on children's PA correlates (Welk, 1999).

### Data analyses

Data obtained from the CPACQ was compiled and analysed using the Statistical Package for the Social Sciences (SPSS) version 21. Double data entry was used for capturing the data accurately. Descriptive statistics included the means and standard deviations of each variable. The strongest predictors of PA were identified by means of regression analysis. Significance level was set at  $p < 0.05$ .

### Results

From the 600 participants who were conveniently selected to participate in the study, the overall response rate was 58% ( $n = 348$ ). The predictors of PA amongst adolescents are shown in Table 1. The results showed that parental influence ( $r = 0.236$ ,  $p < 0.01$ ), peer influence ( $r = 0.012$ ,  $p < 0.05$ ), perceived PA self-efficacy ( $r = 0.212$ ,  $p < 0.05$ ) and perceived PA competence ( $r = 0.192$ ,  $p < 0.05$ ) were all significantly strong predictors of PA, with parental influence being the strongest predictor overall.

**Table 1:** Correlation analysis of predictors

Variables	Mean	Standard Deviation	r	R <sup>2</sup>	p- value
Predisposing factors:					
Attraction to PA	17.03	3.027	0.480	0.031	0.202
Perceived self-efficacy	65.61	8.992	0.212	0.06	0.000*
Perceived competence	17.32	3.537	0.192	0.018	0.000*
Reinforcing factors:					
Parental role modelling	12.60	2.758	0.041	0.041	0.225
Parental influence	13.94	2.577	0.236	0.057	0.000*
Peer influence	14.16	2.695	0.121	0.021	0.012*
Enabling factors:					
Environmental factors	14.18	2.748	0.010	0.017	0.412

\*significant at  $p < 0.05$ .

### Discussion

The aim of this study was to determine which predisposing, reinforcing, and enabling factors were the strongest predictors of PA participation among 11 to 13 years old primary school children in the Metropole South Education District of the Western Cape. Previous research suggested that children who felt that significant others in their lives were supportive of their PA pursuits were more likely to be physically active than children who did not have significant others who were supportive (Belton et al., 2014; Chen et al., 2014).

The predisposing factors were perceived competence, perceived self-efficacy and attraction to PA. The factor that correlated significantly with PA was perceived self-efficacy. This finding was similar to the findings in the study conducted by King et al. (2011). Ordinal logistic regression analysis revealed that of the fourteen predisposing, reinforcing and enabling factors that were tested, PA self- efficacy ( $p = .03$ ), and attraction to PA ( $p = .01$ ) were statistically significant predictors of middle school children's after-school PA level (King et al., 2011). Therefore, it was found that children who held a higher level of PA self-efficacy were more likely to be physically active after school than children with a lower level of PA (King et al., 2011).

Children who were attracted to physically active games and sports activities were more likely to be physically active after school than children with lower levels of PA attraction (King et al., 2011). In contrast to King's (2011) study, attraction to PA did not correlate significantly with PA in the current study. However, in a cross-sectional Thai study conducted by Wattanasit (2009) that examined the determinants of physical activity, attraction to PA was a significant predictor of PA in Thai adolescents. Previous research studies suggested that a positive relationship existed between perceived competence and PA (Welk et al., 1999; Wattanasit, 2009). The present study found that adolescents who felt capable of competently performing PA and valued PA were predisposed to an active lifestyle. A possible explanation for these findings is that adolescents value those activities they are good at performing. As a result, children who had higher levels of perceived competence demonstrated greater attraction to PA (Welk, 1999). The reinforcing factors were parental role modelling, parental influence, and peer influence. Peer influence was a significant predictor of PA in the present study. Similar to the results from the present study, Chen et al. (2014) examined the associations between children's PA and the social context. Adolescents engaged in less intense activity when alone than when in the presence of others, and in more intense activity in the presence of peers and friends. Although many investigators have examined peers as a moderator of social and emotional development (Welk et al., 2003; Chen et al., 2014), the present study contributes to the literature by demonstrating that peer relationships play an important role in children's PA by indicating that it was a significant predictor of PA.

Parental influence had the most significant correlation with PA. Children who had the support and positive motivation from parents have a higher level of PA and were more likely to be physically active than children with a lower level of parental influence. Children who felt that parents were more positive towards their PA participation, increased their level of PA. This study's findings showed that parental influence was also the strongest predictor of PA like in the Thai adolescents (Wattanasit, 2009). According to Welk (1999), parental influence has both direct and indirect effects on PA. The relationship between parental influence and health behaviour in children and adolescents was reported by previous researchers (Welk et al., 1999; Trost et al., 2003). Parental influences were thought to operate primarily through providing support and encouragement (McKintosh et al., 2011). The role of parents is vital in establishing opportunities and may influence a child's ability for acquiring positive health behaviours. Families, therefore,

play a powerful and important role in promoting health-enhancing behaviours. Thus, involving parents and the whole family appears to be fundamental to approaches attempting to increase children's PA levels (McKintosh et al., 2011). In contrast to the results of the present study, King et al. (2011) found that an environmental factor such as access to sports equipment, was a statistically significant predictor of middle school children's after-school PA level. Similarly, Mckintosh et al. (2011) found that accessibility, opportunities, and aesthetic attributes had significant associations with PA. Weather and safety showed less-strong relationships (Mckintosh et al., 2011). Providing access to PA is an increasingly important responsibility, because many aspects of society make it harder for children to be physically active. Parental concerns (real or perceived) about the safety of parks and playgrounds, and an increasing reliance on after-school programmes are two factors that contribute to physical inactivity in children (King et al., 2011). Because these factors are out of a child's control, the schools, parents and communities need to accept responsibility for finding opportunities for children to be physically active on a daily basis (Welk, 1999). Physical activity promotion strategies that target PA self-efficacy, parental influence and increasing sport participation of adolescents are vital for increasing the levels of PA in youth. When promoting PA in adolescents, health promotion efforts should rely not only on attraction to PA, perceived physical competence, and peer influence, but also on parental influence. To create the perception of parental influence, three aspects of parental support should be targeted, namely, support, role modelling, and encouragement.

### **Limitations**

Three limitations were encountered in the study. Firstly, the questionnaire utilized was dependent upon childrens' recall ability and a child's perception of his or her PA may be inaccurate. Secondly, the accurate description and recording of the amount of time engaging in PA may be misjudged as children tend to overestimate the time of PA participation. Thirdly, using convenient sampling, as the participant selection method limited the generalizability of the findings.

### **Conclusion**

Physical activity self-efficacy, parental influence, peer influence, and perceived PA competence were all strong predictors of PA in the present study. Parental influence was the strongest predictor of PA overall. Adolescents will see long-term health benefits, if parents encourage, role-model and participate in PA with their children. Strong foundations for PA fostered during the adolescent phase can help avoid the trend towards inactivity as adolescent's approach adulthood. Understanding predisposing and reinforcing factors predicting PA are vital to promote PA participation among adolescents.

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