University of Victoria | Graduate Studies

Notice of the Final Oral Examination
for the Degree of Master of Science

of

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BSc (University of Guilan, 2014)

"Psychological factors as mediators of the relationship between motor skills and physical activity in children"

School of Exercise Science, Physical and Health Education

Tuesday, December 19th, 2017
9:30 a.m.
Clearihue Building
Room B007

Supervisory Committee:
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Abstract

The 2016 Canadian 24 Hour Movement Guidelines for Children and Youth recommends that children accumulate at least 60 minutes of moderate- to vigorous-intensity physical activity (MVPA) each day, however, currently only 9% of Canadian children aged 5- to 17-years meet this recommendation. Ensuring that Canadian children and youth engage in recommended levels of physical activity is important because research continues to highlight the health benefits of physical activity. These benefits include increased bone density, cardiorespiratory fitness, and musculoskeletal strength/endurance. To address the low levels of physical activity in Canadian children it is important to understand the factors that affect children's physical activity levels. For instance, there is mounting evidence that motor skills proficiency in children is associated with greater sport participation and higher levels of physical activity. There is also ample evidence of sex-based differences in children's participation in physical activity. What is less certain is whether the relationship between motor skills proficiency and participation in physical activity is direct, or whether it is mediated by other factors. In particular, psychological factors such as perceptions of competence, subjective task values, and ability beliefs have been suggested as possible mediators of the relationship between motor skills proficiency and participation in physical activity.

The aim of this study was to examine the relationship between motor skills proficiency and participation in physical activity considering three mediators (ability beliefs, subjective task value, and expectancy of success) among Grade 3 children and considers those relationships in terms of sex-based differences. The participants in this study were recruited from eight elementary schools from School District 61 in Victoria, British Columbia. Participants were 398 children (Girls: n = 201, Boys: n = 197). Motor skills were assessed using the Test of Gross Motor Development-2 (TGMD-2), physical activity participation was measured using the Children's Assessment of Participation and Enjoyment (CAPE), and ability beliefs, subjective task value, and expectancy of success were measured using the Expectancy Value Questionnaire (EVQ). The TGMD-2 was administered during scheduled physical education classes. For each testing session, children rotated through four stations. Each station focused on a different set of TGMD-2 skills. At each station, a research assistant communicated and demonstrated the TGMD-2 skills to participants. Each participate was individually video-recorded performing the test skills. The motor skills of each child were subsequently scored from the video recordings. The CAPE and the EVQ were administered either immediately after completion of motor skill testing or during a subsequent testing session. The CAPE and the EVQ were administered using an interviewer-administered method.

Descriptive statistics showed that participation in physical activities was low with a mean score of 3.7 on a scale of 14. Percent of maximum (POMP) scores of the psychological variables were in the middle of the range of possible scores; specifically: 68.7%, 74.8%, and 72.7% for children's ability beliefs, task value, and expectancy of success, respectively. Motor skill levels among all children were in the middle of the range of possible scores with POMP

scores of 65.5% and 66.4% for locomotor skills and object control skills, respectively. Motor skills scores were converted to standard scores which revealed that children's motor skills levels were poor compared to normative data associated with the TGMD-2. A MANCOVA revealed a main effect of sex (F (7, 389) = 29.684, $p < .001$; Wilks' Lambda = 0.652) between boys and girls in terms of their ability beliefs, expectancy of success, subjective task value, motor skills proficiency, and participation in physical activity. A second MANCOVA examining the effect of sex on total raw scores of motor skills and physical activity also revealed a main effect of sex (F (2, 394) = 11.130, $p < .001$; Wilks' Lambda = 0.947). Separate parallel multiple mediator models were created for both boys and girls. The mediator model for boys revealed an overall significant effect of .044 ($p < .001$). The mediator model for girls revealed an overall significant effect of .031 ($p < .05$). The mediation model for boys showed that the psychological variables in this study did not mediate the relationship between motor skills and physical activity participation. Instead, boys' motor skills directly predicted their participation in physical activity. The girls' mediation model showed mediation between motor skills and physical activity with subjective task value as the mediator. Girls' motor skills did not have a direct relationship with their participation in physical activities.

Overall, the mediation model for boys in this study showed no mediation between motor skills and physical activity. However, there was a direct relationship between boys' motor skills and physical activity. The mediation model for girls in this study showed mediation between motor skills and physical activity with subjective task value as the mediator. There was no direct relationship between motor skills levels and physical activity for girls. The small effect size in both the boys' and the girls' mediation models indicate the presence of other determinants in addition to those measured in this study. Further research is required to explore individual, social, and environmental factors which may influence children's physical activity. The findings of this study provide parents and teachers with an understanding of what to expect from children in middle childhood. The findings of the mediation models are also a reminder of the importance of motor skills in children's physical activity, their ability beliefs, values, and expectations. The findings of the study suggest that parents, teachers, and coaches might benefit from adopting a different approach to girls when encouraging them to participate in physical activity.

Future research might: (1) include gender as a mediating factor in future mediation models, (2) explore mediation models with locomotor skills and object control skills as independent variables, and (3) explore the role of social and environmental factors such as the influence of parents, teachers, peers, culture, and society on children's participation in physical activity.