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

of

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“A Feasibility Study Evaluating a Family-Centered Web-based Intervention to Promote Physical Activity Among Children”

School of Exercise Science, Physical Health and Education

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Remote Defence

Supervisory Committee:
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Abstract

Background: Family-centered Web-based lifestyle interventions have the potential to be a scalable and cost-effective strategy to promote physical activity for children. However, program engagement and attrition are key challenges facing self-guided Web-based interventions. Human email-mediated support may be a solution to these challenges. Currently there is a lack of research examining the addition of human email-mediated support to self-guided family centered physical activity interventions can improve engagement and intervention effectiveness. Thus, a feasibility study is needed to further understand ways to enhance web-based intervention delivery.

Objective: (i) Evaluate the feasibility (recruitment, attrition, engagement, satisfaction) of a human email-mediated support compared to a self-guided Web-based intervention (ii) examine the potential efficacy of a human-supported versus self-guided web-based intervention in improving children’s physical activity and parental support behaviours.

Methods: Children aged 8-12 years old who did not meet the Canadian physical activity guidelines were recruited. Families were allocated to either 10-week human email-mediated support or self-guided program. The programs were developed using the multi-process action control (M-PAC) framework. The programs provided information and interactive online activities targeting healthier lifestyle behaviours. The human support group received multiple weekly support emails as needed. The self-guided only received one generic email per week. Both parents and children completed validated questionnaires assessing physical activity and parental support behaviours pre- and post-the 10-week intervention. Descriptive statistics were used to analyze recruitment rate, attrition and website engagement. Repeated measures analysis of variance (ANOVA) were used to evaluate intervention effectiveness. Post-program interviews were added to further explore program satisfaction.

Results: Fifty-one families contacted the researcher and eighteen families completed follow-up measures. The overall recruitment rate over a 16-month period was 41% (21/51). The attrition for human email-mediated support and the self-guided group was 10% and 18.2%, respectively. The attrition for both groups was 14% (3/21). The human email-mediated support group showed a significantly higher login frequency (4.7±2.1 vs. 2.3±1.4, respectively; \(p = 0.02\)), percentage of core pages accessed (35.8±19.6 vs. 13.1±18.2, respectively; \(p = 0.02\)), and total time spent in minutes (180.6±110.6 vs. 108.8±88.1, respectively; \(p = 0.01\)). The human email-mediated support group was more satisfied with the program compared to the self-guided group (\(p < 0.05\)). Both human support and self-guided groups improved their informational and appraisal-emotional support (\(p < 0.01; \eta^2_\text{p} = 0.9\)), parent self-efficacy to support their child’s physical activity (\(p = 0.03; \eta^2_\text{p} = 0.27\)), and child physical activity confidence (\(p = 0.04; \eta^2_\text{p} = 0.26\)). Children in the human email-mediated group showed a greater increase in the children’s physical activity intrinsic motivation (\(p = 0.02; \eta^2_\text{p} = 0.34\)) than self-guided group following the intervention.

Conclusions: Study recruitment was a challenge. The human email-mediated support group had a lower attrition rate and a higher engagement than the self-guided group. Both interventions showed potential efficacy in improving physical activity measures. A full-scale study is recommended to confirm findings.