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Abstract Title: Physical activity as a predictor of sleep quality and quantity among preschool-aged children

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Introduction

Poor sleep among children is common in today's society (Tikotzky & Shaashua, 2012). This is concerning as poor sleep often leads to adverse health outcomes, including physical and psychosocial health deficits, for example (Matricciani, Olds, Blunden, Rigney, & Williams, 2012). It is therefore important to determine ways to promote healthy sleep in children. Among adults, physical activity (PA) is supported as a beneficial sleep practice (Kredlow et al., 2015). PA may be a beneficial sleep practice for children, however, studies examining this topic are sparse and inconsistent.

Objectives

The objective of the study is therefore to examine the relationship between PA and sleep among children ages 3 to 5 years.

Method

Sub-study 1: Children between the ages of 3 and 5 years will wear a waist-accelerometer to objectively measure PA for nine consecutive days (n=30). The waist-accelerometer will collect sedentary behaviour (SB), light PA (LPA) and moderate to vigorous PA (MVPA) data. Parents will complete a survey to subjectively measure their children's sleep duration.
Sub-study 2: The PA data from sub-study 1 will be used in analysis for sub-study 2. The children will wear a wrist-accelerometer to objectively measure total sleep time (TST), sleep onset latency (SOL) and sleep efficiency for nine consecutive nights.

Results

Multilinear regression will be used to determine the relationship between PA and sleep. It is hypothesized that children who are more physically active will have longer sleep durations and TSTs, shorter SOLs and better sleep efficiencies than children who are less physically active. The study will be complete by March, 2018.

Conclusions

This study will contribute to the limited knowledge base surrounding the relationship between PA and sleep among preschool-aged children. This study is innovative as it will be the first, to the author's knowledge, to utilize the recommended tools for measuring PA (i.e., waist-accelerometer) and sleep (i.e., wrist-accelerometer) respectively, within the same study (Slater et al., 2015; Trost et al., 2005). The study might therefore help to provide better insight into the relationship between PA and sleep among preschool-aged children.

Should the results of this study support the hypothesis, the study could help target policy and practice within preschools, advocating for increased opportunity for PA to promote healthy sleep. Results could help inform health care providers of PA as a potential method for improving children's sleep. Finally, results could inform future experimental sleep research examining the *effect* of PA on sleep among preschool-aged children.

References

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