

Friendship Networks and Physical Activity and Sedentary Behaviour among Youth: A Systematized Review

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INTRODUCTION

- Low levels of physical activity and increased participation in sedentary behaviour are two important lifestyle behaviours that have contributed to the rise in overweight and obesity among youth.¹
- Nine percent of boys and 4% of girls in Canada accumulate 60-minutes of moderate-to-vigorous intensity physical activity on at least six-days of the week. Sixty percent of children spend more than 2-hours per day participating in screen-based activities.^{2,3}
- Evidence consistently shows friendship networks having a significant influence on smoking and delinquency. Among youth^{5,6} yet little is known about the influence of friendship networks on physical activity and sedentary behaviour.⁷

AIM

- To undertake a systematized literature review of studies examining the association between aspects of friendship networks and both physical activity and sedentary behaviour among children and adolescents.

METHOD

• DATABASE SEARCH

- Seven scientific online databases were searched including : MEDLINE; PubMed; CINAHL; SPORTDiscus; ERIC; SocINDEX, and; PsycINFO. were searched.

- Search terms reflected the **population of interest** (child, preteen, adolescent, student, teen, boy, girl), the **exposure** (social network, friend, peer, social group), and the **outcomes** (physical activity, play, sport, exercise, sedentary, inactivity, leisure).

- Searches were restricted to English language, peer-reviewed, primary studies, and publications from all years.

• STUDY INCLUSION AND EXCLUSION CRITERIA

- **Eligible studies included:** sample participants aged 6-18 years; a measure of each participants friendship network through friendship nominations or a friendship rating score, and; a measure of each participant's physical activity level and/or sedentary behaviour.

- **Ineligible studies included:** measured perceived friend support only or used participants' proxy measure of friends' physical activity or sedentary behaviour.

• DATA EXTRACTION AND SYNTHESIS

- **Extracted and tabulated article information:** study design, sample size, participant characteristics, description of friendship network or friendship rating measure, physical activity and/or sedentary leisure-time activity, confounders, study findings, and theoretical framework or model used.

FINDINGS

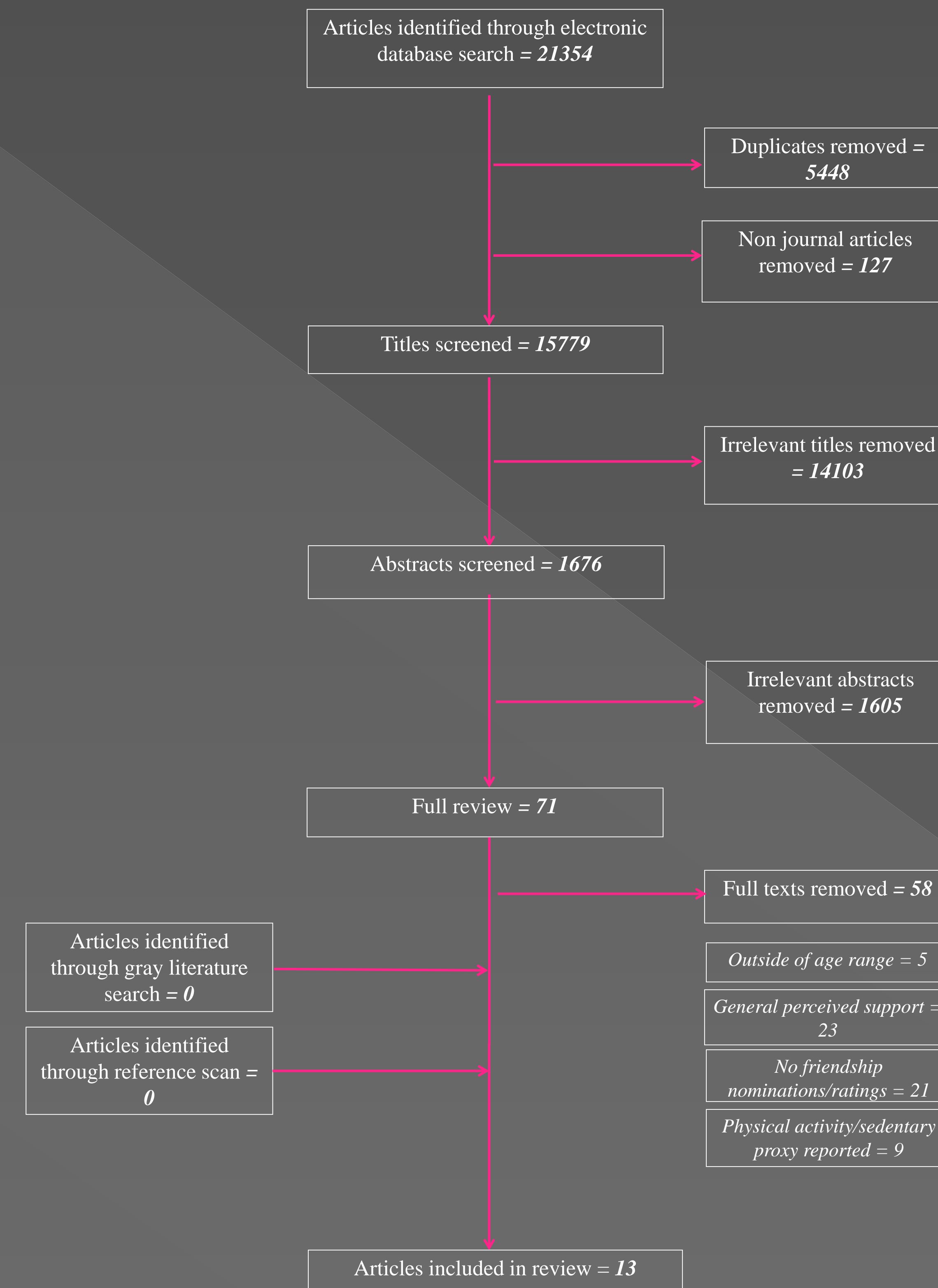


Figure 1. Flow diagram of article search and selection

• GENERAL CHARACTERISTICS OF REVIEWED STUDIES

- A total of thirteen studies met the inclusion criteria, four of which were not included in the previous review.⁷⁻²⁰
- Geographical location of studies: Australia (n=4); USA (n=3); UK (n=2); Canada (n=1); Estonia (n=1); Finland (n=1), and; Norway (n=1).
- Nine studies were cross-sectional and four were longitudinal.
- Sample sizes ranged from 80 to 17,556 participants and response rates ranged from 58% to 93%.
- All studies measured participants physical activity levels via self-report questionnaires, interviews, pedometers, or accelerometers. Three studies captured self-reported sedentary behaviour.
- Eleven studies used participant nominated friends and best friends in their class, grade, school, or after-school program. Two studies asked children to rate how much they liked to play and interact with other children to create a popularity score.
- Three studies explicitly stated the use of a theoretical framework: Theory of Planned Behaviour; Self-Perception Theory; Social Learning Theory, and; the Expectancy-Value Model.

FINDINGS

• ASSOCIATIONS BETWEEN FRIENDSHIP NETWORKS AND PHYSICAL ACTIVITY

- Of the ten studies that measured close friends' or friendship groups' physical activity all found some evidence that the level of physical activity of friends was associated with an individual's physical activity level.
- Five studies examined the association between popularity levels and physical activity, and found that, overall, higher levels of popularity was associated with higher levels of physical activity.¹⁰
- Longitudinal evidence showed that, over time, an individual's level of physical activity tended to change to reflect his or her friends' physical activity level.
- There was conflicting results as to whether or not participant's friendship selection was based on physical activity levels.
- Friends' physical activity was more often associated with boys' physical activity compared with girls' physical activity.

• ASSOCIATIONS BETWEEN ASPECTS OF FRIENDSHIP NETWORKS AND SEDENTARY BEHAVIOUR

- Three studies examine the association between friends' sedentary behaviour and an individual's sedentary behaviour and found conflicting results.
- One study found that as adolescents' popularity increased, television viewing per day decreased.

CONCLUSION

- Several aspects of friendship networks are associated with youth physical activity, including best friend's or close friend's physical activity, popularity, reciprocity, and degrees of separation.
- Aspects of friendship networks and sedentary behaviour is both limited and mixed.
- There appears to be gender differences such that friends' physical activity was more often associated by boys' physical activity compared with girls' physical activity.
- Studies in this review only included within-school friendship networks, and therefore its' applicability to outside of school friendship networks may be limited.
- The results of this review could inform future public health intervention that harness the influence of aspects of friendship networks to increase levels of physical activity among youth. This could be accomplished through targeted network restructuring that exposes active individuals with inactive individuals to promote co-participation and friendship modelling.²¹

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