Association between social networks and health behaviours in adolescents: a systematic review

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‘Behaviours established during adolescence are often maintained as an adolescent matures…’ (Kelder, S.H., et al., 1994)

40% of regular smokers began smoking before age 16 (Cancer Research UK)

8% of 11 year olds reported having an alcoholic drink .. Increased to 69% of 15 year olds (Fuller, E., 2015)

Only 24% of UK children aged 5-15 years met the physical activity guidelines in 2015 (BHF 2015)

6% of 11 year olds and 24% of 15 year olds said they had tried drugs at least once (NHS, 2016)
What do we mean by ‘social network’?

Friends, family and the wider circle have a great influence on everyday lifestyle choices.

Parental to peer shift in influence during adolescence.
Previous research

School-based friendship networks and children’s physical activity: A spatial analytical approach

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Abstract

Despite the known health benefits, the majority of children do not meet physical activity guidelines, and past interventions to increase physical activity yield little success. Social and friendship networks have been shown to influence obesity, smoking and academic achievement, and past had interventions have successfully reduced the impact of negative influences. Moreover, the role of social networks on physical activity is not clear. This paper investigates the impact of school friendship networks on children’s physical activity, and attempts to quantify the association using spatial analytical techniques to account for the social influence.

Physical activity data were collected for 596 children, aged 10-11 years old, from 45 schools in Dublin, Ireland. Data from 92 children were used for analyses. Outcome measurement included vigorous physical activity per day (VPA) which was measured objectively using accelerometers. Children nominated up to 4 school friends, and school-based friendship networks were constructed from these nominations.

Networks were used to assess whether physical activity showed social dependence (in terms of social proximity in social space) using Moran’s I statistics. Spatial autoregressive modelling was then used to assess the impact of social dependence, which compared to social trends of physical activity.
Primary aim: To undertake a systematic review to investigate the association between peer social networks and health behaviours in adolescents

Objectives:
• To investigate the evidence by health behaviours
• To synthesise the evidence to better understand the important social network characteristics that are associated with all health behaviours
Defining & measuring the *social network*

*Keyword search* included terms for “social network”, “health behaviour” and “adolescence”

**Eligibility criteria included:**
- Adolescent population (mean age 13-18 years)
- Tested the association between peer social networks and health behaviour(s)
- Health behaviours: cigarette smoking, alcohol drinking, drug/substance use, physical activity, diet and BMI/weight management
Evidence synthesis: 3 main themes

- **Popularity**: High in-degree – receiving a high number of nominations
- **Influence**: Adoption of the behaviour(s) of already established friendships
- **Selection**: Formation of new friendships on the basis of a health behaviour(s)
Results

Flow diagram of search strategy

- Smoking (17/62)
- Alcohol (14/62)
- Smoking & Alcohol (combined) (13/62)
- Drug/Substance use (11/62)
- Physical Activity (5/62)
- Diet (1/62)
- Weight management (1/62)
Preliminary results: Cigarette smoking

Positive association in 3/5 (60%) of studies for popularity and increased smoking

Positive association in 12/13 (92%) of studies for influence to smoke

Positive association in 9/9 (100%) of studies for selection of friends on the basis of similar smoking habits
Positive association in 6/7 (86%) of studies for **popularity** and alcohol drinking

Positive association in 5/6 (83%) of studies for **influence** to drink

Positive association in 4/4 (100%) of studies for **selection** of friends on the basis of similar drinking habits
Positive association in 2/4 (50%) of studies for popularity and drinking and smoking

Positive association in 7/8 (88%) of studies for influence to drink and smoke

Positive association in 2/4 (50%) of studies for selection of friends on the basis of similar drinking and smoking habits
Preliminary results: Physical activity

Positive association for 2/2 (100%) of studies for popularity with increased physical activity levels

Positive association for 1/1 (100%) of studies for peer influence on physical activity

Positive association for 5/5 (100%) of studies for selection of friends on the basis of similar physical activity levels
Positive association in 3/5 (60%) of studies for popularity and drug/substance use

Positive association in 3/5 (60%) of studies for influence and use of drugs/substances

Positive association in 1/2 (50%) of studies for selection of friends on the basis of similar drug/substance use habits
Positive association for 2/2 (100%) of studies for peer influence for dietary behaviours/weight management
Discussion

Peer networks play a crucial role in shaping health behaviours.

**Popularity** is important in health behaviours – popular adolescents are more likely to engage in higher levels of physical activity, they are also more likely to engage in risky behaviours (smoking/drinking/drug use).

Adolescents **select friends** who have **similar behavioural traits** to themselves.

Adolescents are **influenced** by their friends to **adopt their friends’ health behaviours** over time.

Important to consider **peer networks** in behaviour change interventions.