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#### **Review Article**

## Family-focussed interventions to reduce harm from smoking in primary school-aged children: A systematic review of evaluative studies



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#### ABSTRACT

Children living in families where adults smoke are exposed to harmful effects of tobacco smoke and risk a predisposition to smoking initiation. Interventions to support families to reduce risk of harm from smoking have been developed and tested. The purpose of this review is to identify effective family-based interventions used to promote smoke-free home environments in families with primary school age children (aged 5-12 years). A systematic search of MEDLINE, Cochrane and CINAHL electronic databases was conducted. Narrative synthesis of included articles was completed. Guidelines for reporting behaviour change interventions were used to summarise and compare intervention timing, content, intensity and delivery. Quality of included studies was critiqued using United States Preventative Services Taskforce (USPST) procedures for internal and external validity. Narrative synthesis was based on methods described by Popay and colleagues. Nineteen articles that evaluated 14 intervention studies focussed on child smoking prevention (n=5), parent smoking cessation (n=4) and environmental tobacco smoke reduction (n=6). Interventions and outcomes were heterogeneous, and were rarely informed by theoretical frameworks relating to family, parenting or child development. Family based interventions may be an important strategy to reduce the effects of smoking for children. There is a need for interventions to be informed by theory relevant to children, parenting and families.

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#### 1. Introduction

The use of tobacco by adults has reduced in Western countries over the last three decades in response to increased awareness of the harm associated with tobacco use and increasing regulation of tobacco products (Bilano et al., 2015). Yet worldwide, tobacco remains the leading preventable factor influencing chronic disease and premature death (World Health Organization, 2015).

Early childhood experiences within the family are the primary context for child development, and an important determinant of health throughout life (Bronfenbrenner and Morris, 2007). For children growing up in families where adults smoke, exposure to tobacco smoke causes harm to their physical health. Children are more susceptible to the physical effects of environmental tobacco smoke (ETS), either through second hand smoke exposure to side-stream tobacco smoke, or third hand exposure, the residual toxic components found in the environment. Whilst many countries have restricted smoking in public environments (e.g. restaurants, cinemas), children are still exposed to ETS in most parts of the world in private spaces such as the family home or in a car (Rosen et al., 2015). Children have little control over the smoking behaviour of adults, and may be unable to remove themselves from exposure. Furthermore, children living in disadvantaged circumstances may be at greater risk of ETS exposure because their family members are more likely to smoke (Kit et al., 2013).

Children's predisposition to smoking is influenced by the smoking behaviours that are modelled by parents and other family members (Leonardi-Bee et al., 2011). Studies of primary school aged children have demonstrated their ability to recognise what cigarettes are, what they are used for and incorporate cigarette smoking into their play activities (Dalton et al., 2005; de Leeuw et al., 2011; Hahn et al., 2000). Children also become more susceptible to the social dynamics of their peer group and, in turn, their social standing influences their own sense of self (Doherty, 2009; Erikson, 1995). Parents recognise these risks of smoking, and may employ strategies to discourage smoking initiation or mitigate the effects of modelling of smoking behaviours for their child (Bottorff et al., 2013).

Intervening to assist families to stop smoking or mitigate the risks at key times of transition, such as during early school years, has the potential to alter the life course for the primary school age child and their family (Elder, 1995). As understanding about the impact of parent smoking on children's physical health and wellbeing has evolved, interventions to reduce the harm from smoking for children have been developed, but the extent to which these interventions are successful or informed by concepts such as parenting or child development is not clear. This review describes the current state of family based interventions used to assist parents of primary school age children to reduce harm from smoking.

#### 1.1. Aim

The aim of this systematic review was to investigate the current state of interventions used to assist parents of primary school age children (aged 5–12 years) in reducing the risk of harm from smoking, including parent smoking reduction, cessation, environmental tobacco smoke exposure and any interventions designed to prevent the

initiation of smoking by children. The review contributes to the existing literature by describing the characteristics and effectiveness of family based interventions, and conceptual frameworks related to children and families used to inform the studies.

#### 2. Methods

#### 2.1. Design

A systematic approach was used to search and select manuscripts for inclusion in the review and the reporting of the review (Higgins and Green, 2011; Moher et al., 2009).

#### 2.2. Search methods

Health related electronic databases were searched (Medline, Cochrane, PubMed and CINAHL) in 2015 following consultation with a health librarian. Search terms included cigarettes, smoking, tobacco, parent, and family. In addition, search terms denoting intervention studies were included (for example, intervention, clinical trial, pilot study, outcomes). See Box 1 for an example.

#### 2.3. Inclusion/exclusion criteria:

#### 2.3.1. Type of participants

Participants included the families, parents or primary caregivers of children aged 5 to 12 years, as well as the children themselves.

#### 2.3.2. Types of interventions

Interventions included any programs offered to parents (smoking or non-smoking) to assist in reducing the risk of harm from smoking. These included programs designed to assist parents to reduce or cease smoking, reduce child exposure to ETS or prevent the initiation of smoking by children. There were no restrictions placed on content or delivery.

#### 2.3.3. Types of studies

The review included recent empirical studies of family-based interventions in English and published between the years 2000 and 2015. This time window was chosen to reflect contemporaneous norms and

#### Box 1 MeSH search strategy.

Term set 1: Child \*
Term set 2: Parent \* OR father \* OR mother \* OR caregivers OR famil \* OR school \* OR communit \*
Term set 3: Cigar \* OR tobacco \* OR smok \* OR smoking cessation OR tobacco cessation OR tobacco smoke pollution OR smoking abstinence
Term set 4: Prevent \* OR control \*
Term set 5: Intervention OR clinical trial OR pilot study OR outcomes OR randomised control trial

Term set 6: 1 and 2 and 3 and 4 and 5

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