

CADTH Health Technology Review

Workplace Electronic Health Promotion Campaigns for Tobacco Smoking Prevention or Cessation

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Table of Contents

List of Tables	4
List of Figures	5
Abbreviations	6
Key Messages	7
Context and Policy Issues	7
Research Question	8
Methods	8
Literature Search Methods.....	8
Selection Criteria and Methods	8
Summary of Evidence	9
Conclusions and Implications for Decision or Policy-Making	9
References	11
Appendix 1: Selection of Included Studies	12
Appendix 2: References of Potential Interest	13

List of Tables

Table 1: Selection Criteria..... 9

List of Figures

Figure 1: Selection of Included Studies 12

Abbreviations

EHPC electronic health promotion campaign

Key Messages

- There is a lack of recent evidence regarding the cost-effectiveness of workplace electronic health promotion campaigns (EHPCs) for the prevention or cessation of tobacco smoking.
- There is a need for well-designed economic evaluations to assess the cost-effectiveness of workplace EHPCs for the prevention or cessation of tobacco smoking.

Context and Policy Issues

Tobacco smoking is the leading preventable cause of mortality with chronic obstructive pulmonary disease, lung cancer, and atherosclerotic cardiovascular disease as the main causes of smoking-related mortality.^{1,2} Canadian data from 2019 (excluding the territories) estimated the daily smoking prevalence rate to be more than 5% with 3,160,100 individuals 12 years and older (across both males and females) reporting they smoke daily.³ Individuals who smoke accrue more health care costs compared to those who have never smoked, with the accrual increasing with age.^{4,5} For example, in Ontario, annual health care costs of an 80 year old who has never smoked versus an 80 year old who currently smokes were estimated to be \$8,740 versus \$19,583, respectively.⁵ In 2012, tobacco use in Canada resulted in \$16.2 billion dollars in expenses related to health care, tobacco control law enforcement, fire damage, and lost production among manufacturers and the service industry.⁶ In the workplace, smoking may result in increased employee absenteeism (e.g., sick leave), as well as presenteeism and reduced employee productivity (i.e., being physically present at work but mentally distracted resulting in lower productivity).⁷

The addictiveness of nicotine is the principal barrier to smoking cessation with nicotine withdrawal symptoms including restlessness, insomnia, irritability, anxiety, concentration difficulties, mood changes (e.g., depression or dysphoria), increased appetite, and weight gain.¹ Tobacco smoking cessation is facilitated by pharmacological and behavioural interventions. Combination interventions (pharmacological and behavioural) have been shown to increase the success of smoking cessation compared to single-intervention approaches (e.g., solely relying on pharmacological interventions).^{8,9} Pharmacological interventions administered as first-line include nicotine replacement therapy (alternative forms of nicotine, such as gum or patches, to relieve withdrawal) and non-nicotine therapy (drugs such as varenicline or bupropion).^{8,10} Behavioural interventions aim to provide education or support, or offer techniques to problem solve, cope, and manage stress; multiple behavioural interventions may be used simultaneously.¹¹ Behavioural interventions are administered in-person or through electronic or technology-based media and may include the following: counselling through individual or group sessions conducted in-person or via telephone or videocalls; self-help resources in print (e.g., pamphlets) or digital form (e.g., audio, video, or PDFs); mobile applications (apps) that offer behavioural change techniques or useful information (e.g., pharmacotherapy facts); web-based interventions that provide access to tailored and interactive materials¹²; and use of text messaging to relay motivational messages, provide positive feedback, and facilitate behavioural changes.¹³

There has recently been an emergence of EHPCs, which aim to promote health and prevent disease by encouraging individuals to exercise healthy behaviours and they usually address behavioural risk factors such as tobacco use.¹⁴ In the workplace, EHPCs may include knowledge mobilization campaigns, strategies, or programs such as awareness messages

delivered through corporate intranet, social media, emails, text messages, and self-directed online programs. For instance, Butt Out is a self-directed online smoking cessation program that was developed by the Centre for Addiction and Mental Health for individuals who smoke in the Canadian Armed Forces. EHPCs may help to promote health and well-being while supporting the prevention or cessation of tobacco smoking among employees.¹⁵ Literature has demonstrated the effectiveness of non-electronic smoking cessation interventions^{4,7,16}; however, the effectiveness of electronic smoking cessation interventions has not been well-studied.⁷ Evaluating the cost-effectiveness of workplace EHPCs may help to inform decision-making regarding their implementation.

The purpose of this rapid review is to evaluate the cost-effectiveness of workplace EHPCs for the prevention or cessation of tobacco smoking. This report compliments a CADTH Summary of Abstracts report on the cost-effectiveness of workplace EHPCs for substance use, gambling, and gaming prevention.¹⁷

Research Question

1. What is the cost-effectiveness of workplace EHPCs for the prevention or cessation of tobacco smoking?

Methods

Literature Search Methods

A limited literature search was conducted by an information specialist on key resources including MEDLINE, PsycINFO, the Cochrane Database of Systematic Reviews, the international HTA database, the websites of Canadian and major international health technology agencies, as well as a focused internet search. The search strategy comprised both controlled vocabulary, such as the National Library of Medicine's MeSH (Medical Subject Headings), and keywords. The main search concepts were smoking cessation and the workplace. Search filters were applied to limit retrieval to health technology assessments, systematic reviews, meta-analyses, network meta-analyses, or economic studies. The search was also limited to English language documents published between January 1, 2016 and January 7, 2021.

Selection Criteria and Methods

One reviewer screened citations and selected studies. In the first level of screening, titles and abstracts were reviewed, and potentially relevant articles were retrieved and assessed for inclusion. The final selection of full-text articles was based on the inclusion criteria presented in Table 1.

Exclusion Criteria

Articles were excluded if they did not meet the selection criteria outlined in Table 1, they were duplicate publications, or were published before 2016.

Summary of Evidence

Quantity of Research Available

A total of 231 citations were identified in the literature search. Following screening of titles and abstracts, 222 citations were excluded and 9 potentially relevant reports from the electronic search were retrieved for full-text review. Three potentially relevant publications were retrieved from the grey literature search for full-text review. Of these potentially relevant articles, 12 publications were excluded for various reasons, and no publications met the inclusion criteria and were included in this report. Appendix 1 presents the PRISMA¹⁸ flow chart of the study selection. Additional references of potential interest are provided in Appendix 2.

Summary of Study Characteristics

No relevant literature (published between January 1, 2016 and January 7, 2021) was identified regarding the cost-effectiveness of workplace EHPCs for the prevention or cessation of tobacco smoking; therefore, no summary can be provided.

Limitations

No relevant literature was identified regarding the cost-effectiveness of workplace EHPCs for the prevention or cessation of tobacco smoking.

Conclusions and Implications for Decision or Policy-Making

No relevant literature was identified regarding the cost-effectiveness of workplace EHPCs for the prevention or cessation of tobacco smoking. Similarly, the authors of a 2020 systematic review of economic analyses evaluating workplace interventions for mental health and

Table 1: Selection Criteria

Criteria	Description
Population	Adults, in a workplace setting, with or without a tobacco smoking addiction
Intervention	EHPCs for the prevention of, or cessation of, tobacco smoking. For example: <ul style="list-style-type: none"> • corporate intranet • social media • applications • email • short message service or multimedia messaging service mobile phone text messages, • self-directed online programs • or other electronic-led campaigns, strategies, or programs
Comparator	EHPCs, with concurrent nicotine replacement therapy Nicotine replacement therapy alone No intervention
Outcomes	Cost-effectiveness (e.g., cost per quitter, cost per life-year saved, cost per quality-adjusted life-year gained, cost per disability-adjusted life-year)
Study designs	Economic evaluations and health technology assessments

EHPC = electronic health promotion campaign.

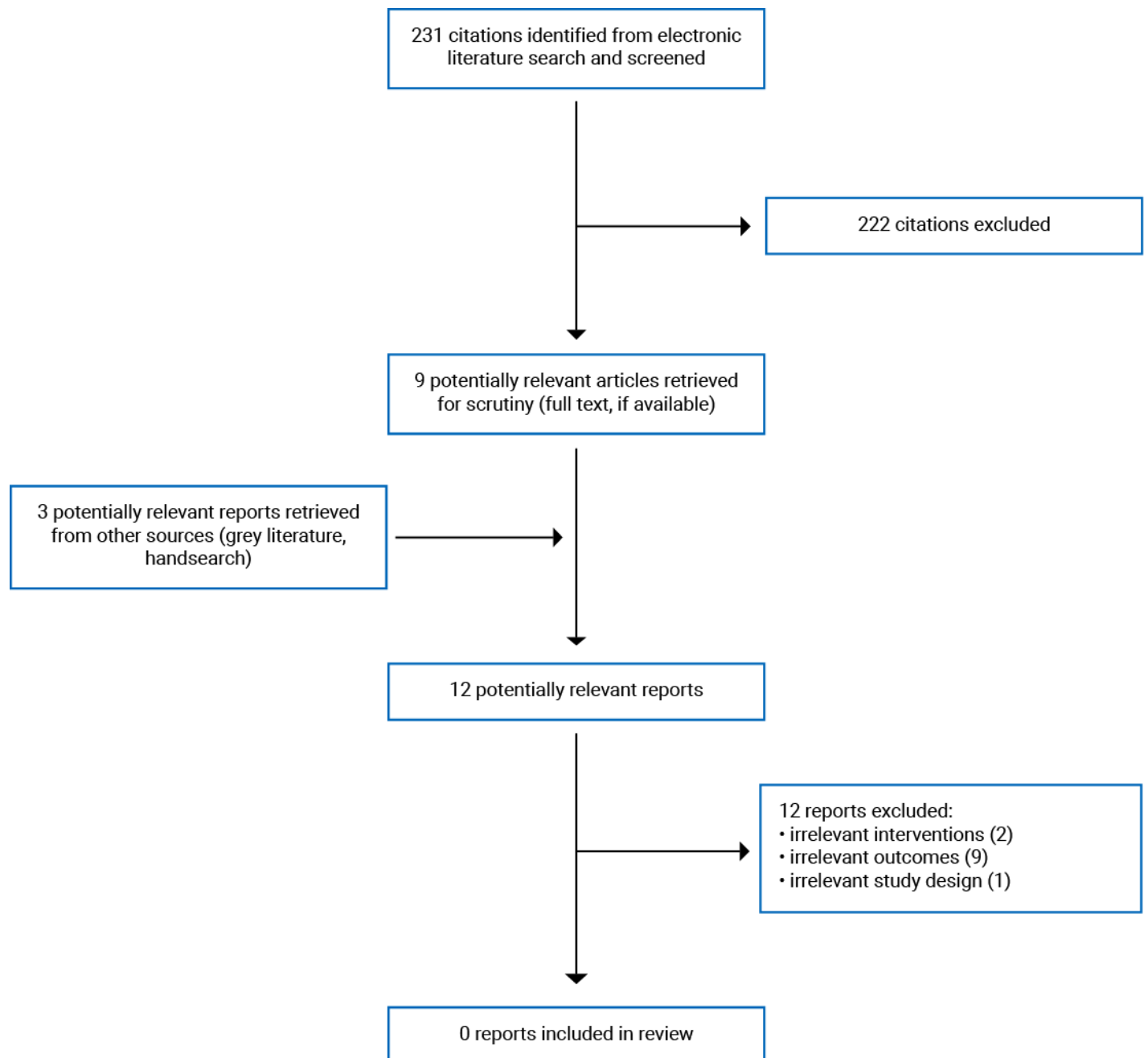
substance use (including smoking) only identified studies reporting the cost-effectiveness of pharmacotherapy and brief counselling for tobacco smoking cessation.⁷ Furthermore, in a 2020 economic evaluation of an in-person workplace smoking cessation intervention, the authors noted that there is limited evidence on the cost-effectiveness of smoking cessation programs in general, and in particular, to their knowledge, no economic evaluation from an employer's perspective has been performed.¹⁶ Together, these findings highlight the absence of evidence regarding the cost-effectiveness of workplace EHPCs for the prevention or cessation of tobacco smoking. Future well-designed economic evaluations that assess the cost-effectiveness of workplace EHPCs for the prevention or cessation of tobacco smoking are needed and may help validate or refute the value and importance of these programs in the workplace.

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Appendix 1: Selection of Included Studies

Figure 1: Selection of Included Studies



Appendix 2: References of Potential Interest

Alternative Interventions (in-person or non-electronic)

Peik S, Schimmel E, Hejazi S. Projected return on investment of a corporate global health programme. *BMC Public Health*. 2019 Nov 07;19(1):1476. [Medline](#)