Smoking cessation interventions among individuals in methadone maintenance: a brief review

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CRD summary
The review concluded that smoking cessation interventions aimed at individuals in methadone treatment did not achieve sustained smoking abstinence, but that smoking cessation treatment did not worsen substance use. The authors' conclusions reflected the evidence presented, but in view of the potential for language bias and lack of validity assessment, the reliability of the conclusions is uncertain.

Authors' objectives
To evaluate the effectiveness of smoking cessation interventions among individuals in methadone maintenance.

Searching
MEDLINE, EMBASE, the Cochrane Library, Educational Resource Information Center, PsycINFO and System for Information on Grey Literature (SIGLE) databases were searched to June 2008 for articles in English. Search terms were reported. Bibliographies of retrieved articles were also searched.

Study selection
Studies that evaluated smoking cessation interventions, aimed at participants in methadone maintenance treatment, were eligible for inclusion. Outcomes of interest were smoking cessation or reduction (reported using either biochemical validation or self report), gender differences in treatment outcomes, and the effect of smoking cessation interventions on substance use behaviours.

Interventions in the included studies were mainly counselling and nicotine replacement therapy either alone or in combination. Other interventions included incentives and pharmacotherapy. The duration of the intervention differed between studies, ranging from four to 26 weeks. Over half the studies reported follow-up assessments at six months or more. All the studies were conducted in outpatient clinics or treatment centres, including residential treatment centres, in the USA. Half of the studies included mainly Caucasian participants, one study included African Americans, while the remaining studies included mixed races or ethno-cultural groups. Few studies reported the mental health status of participants. Substances used by participants varied between studies. Methadone dose varied between studies. Most studies measured smoking cessation using self-report and biochemical verification, only one study used self-report only.

The authors did not state how many reviewers performed the selection.

Assessment of study quality
The authors did not state that they assessed validity.

Data extraction
The authors did not state how data were extracted from the review.

Methods of synthesis
Data were combined in a narrative synthesis.

Results of the review
Eight studies (n=939) were included in the review: five randomised controlled trials (RCTs), and three pre-test/post-test non equivalent group design with a control group. One RCT was reported to be double-blind, and three RCTs were reported to be single blind.

Smoking cessation: One RCT reported higher cessation rates among participants receiving incentives to quit smoking...
and remain abstinent compared with the control group. However, five studies found no significant differences between smoking cessation treatment groups and control groups at the end of treatment. None of the five studies reporting on follow-up found any significant sustained treatment effects (continued abstinence) among participants.

**Smoking reductions:** Mixed results were reported for smoking reductions. Three RCTs reported significant reductions from baseline for the average number of cigarettes smoked per day and reductions in carbon dioxide levels for smoking cessation treatment groups compared to control groups. However, one RCT reported a significant increase from baseline in carbon dioxide levels and urine cotinine levels in the smoking cessation treatment group, while two studies found no significant differences in carbon dioxide levels.

**Drug use outcomes:** Smoking cessation treatment was not associated with increased drug use. Significant reductions were reported in the urge to use substances (one study). Significant decreases in rates of opiate and cocaine use were reported among participants who achieved smoking abstinence (one study) during smoking cessation treatment. However, three studies found no significant changes in substance use during the smoking cessation treatment period.

**Gender differences:** Only two studies reported on gender differences and reported inconsistent results for treatment outcomes.

**Authors' conclusions**
Smoking cessation interventions aimed at individuals in methadone treatment did not achieve sustained smoking abstinence. However, smoking cessation treatment did not worsen substance use.

**CRD commentary**
The review question was clear and supported by adequate inclusion criteria. Several relevant sources were searched, but no attempts were made to minimise language bias. Methods used to select studies and extract data were not described, so it was not known whether efforts were made to reduce reviewer error and bias.

Study quality was not assessed, so results from these studies and any synthesis may not be reliable. A narrative synthesis was appropriate due to the differences between studies in terms of design and intervention components, but the synthesis was not always clearly reported.

The authors' conclusions reflected the evidence presented, but in view of the potential for language bias and lack of quality assessment, the reliability of the conclusions is uncertain.

**Implications of the review for practice and research**
**Practice:** The authors did not state any implications for practice.

**Research:** The authors stated that further studies are required to determine optimum intervention designs and components which can improve smoking cessation among individuals in methadone maintenance. In particular, future studies should consider interactions between mental health status, substance use, gender and smoking cessation, and use standard cut-off points and measures for biochemical verification of smoking abstinence.

**Funding**
British Columbia Mental Health and Addictions Research Network.

**Bibliographic details**

**PubMedID**
20015608

**DOI**
10.1016/j.jsat.2009.10.001

Original Paper URL
http://dx.doi.org/10.1016/j.jsat.2009.10.001

Indexing Status
Subject indexing assigned by NLM

MeSH
Female; Humans; Male; Methadone /therapeutic use; Narcotics /therapeutic use; Opioid-Related Disorders /therapy; Smoking /therapy; Smoking Cessation /methods; Social Support; Tobacco Use Disorder /therapy

AccessionNumber
12010001690

Date bibliographic record published
04/08/2010

Date abstract record published
17/11/2010

Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.