Maternal smoking during pregnancy and evidence based intervention to promote cessation

Mullen P D

Authors' objectives
The author's stated objective was to answer three questions: whether intervention to promote maternal smoking cessation during pregnancy is effective, what works best, and in which populations. However, only the first of those questions appears to have been addressed systematically using the methods summarised in this abstract.

Searching
MEDLINE, Healthline, PsycLIT and Dissertation Abstracts were searched together with bibliographies in reviews. Reports were sought from experts, funding agencies and investigators.

Study selection
Study designs of evaluations included in the review
Randomised controlled trials (RCTs) were eligible.

Specific interventions included in the review
The type and duration of the interventions used in the included studies varied. Most had more than one of the following components: counselling, personal visits or sessions with various providers, phone contact, mailed materials, manuals, booklets, letters, pamphlets, video tapes, audio tapes, newsletters, goal setting, buddy support and clinic staff support.

Participants included in the review
The inclusion criteria were not explicit. However, by implication the eligible participants were pregnant smokers. Most of the included studies were conducted in the USA. The included studies were conducted in higher and lower income populations.

Outcomes assessed in the review
Studies reporting validated (no details given) smoking cessation outcomes in late pregnancy were eligible.

How were decisions on the relevance of primary studies made?
The author does not state how the papers were selected for the review, or how many of the reviewers performed the selection.

Assessment of study quality
The author does not state that they assessed validity.

Data extraction
The author does not state how the data were extracted for the review, or how many of the reviewers performed the data extraction. Data were extracted for the percentage of participants in the treatment and control groups who stopped smoking in each study, to enable calculation of the risk ratios (RRs). Nonrespondents were considered as smokers. Information about the setting and intervention were also extracted.

Methods of synthesis
How were the studies combined?
A random-effects model was used to calculate a weighted pooled RR for smoking cessation.

How were differences between studies investigated?
Differences between the studies were not investigated.
Results of the review
Sixteen RCTs (6,519 participants) were included.

The pooled RR was 1.7 (95% confidence interval: 1.26, 2.25), indicating a significant increase in the number of women who stopped smoking with treatment compared with the control. The meta-analysis graph suggested significant heterogeneity (differences) between the studies; this was not investigated further. Only 3 of the individual studies found a statistically-significant increase in smoking cessation with treatment, whilst the other 13 studies showed no significant difference between the treatment and control.

The evidence presented for the other questions posed in the article (what works and effectiveness in population subgroups) was mainly from sources other than the studies identified by the systematic review approach described. It is, therefore, not included in this abstract.

Authors' conclusions
It was difficult to tell to what extent the author's conclusions were based on the studies identified by the systematic review approach described. The conclusions appear to be almost entirely based on other sources of information. The author stated that the meta-analysis reported in this article supports a conclusion, indicated by previous reviews and meta-analyses, that brief counselling of 5 to 10 minutes increases validated cessation in pregnant smokers by 70%.

CRD commentary
The inclusion criteria were not entirely explicit. The studies were sought from various appropriate sources, but no details were given of how the search was conducted, the dates covered, or language or other restrictions. There were also no details reported about how the review was conducted; study selection bias and other errors cannot, therefore, be ruled out. The validity of the included trials was not assessed and the trials were pooled in a meta-analysis, regardless of apparent heterogeneity. The meaningfulness of such an average effect size (the 70% increase in successful smoking cessation reported in the author's conclusions) is highly questionable. The reader cannot be assured that the author's other conclusions are reliable because they appear to be largely based on practice guidelines, expert opinion and previous reviews.

The paper stated that it built on another meta-analysis, which addressed prenatal smoking cessation, by the same author (see Other Publications of Related Interest).

Implications of the review for practice and research
Practice: The author states that there is a strong argument for broad-scale adoption of brief counselling with self-help material tailored for pregnancy. Other reported implications for practice were not clearly derived from the studies that met the inclusion criteria described in this review.

Research: The author states that issues such as stress, family conflict, depression and interventions directed at fathers who smoke merit further exploration.

Bibliographic details
Mullen P D. Maternal smoking during pregnancy and evidence based intervention to promote cessation. Primary Care Clinics in Office Practice 1999; 26(3): 577-589

PubMedID
10436288

Other publications of related interest
Indexing Status
Subject indexing assigned by NLM

MeSH
Evidence-Based Medicine; Female; Humans; Pregnancy; Pregnancy Complications /epidemiology /prevention & control; Prenatal Care; Prevalence; Smoking /adverse effects /epidemiology /prevention & control; Smoking Cessation /methods; United States /epidemiology

AccessionNumber
11999001915

Date bibliographic record published
30/11/2003

Date abstract record published
30/11/2003

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.