Treating tobacco dependence among African Americans: a meta-analytic review

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CRD summary
This review evaluated the effectiveness of smoking cessation interventions for African Americans. The authors concluded that smoking cessation interventions are effective among African American people. Given some methodological concerns in the review process, the extent to which the author's conclusions are reliably derived is unclear.

Authors' objectives
To evaluate the efficacy of smoking cessation interventions among African Americans.

Searching
Studies were identified through a computerised bibliographic search of PsycINFO, PsycFirst, MEDLINE and Dissertation Abstracts Online until April 2006. The references of retrieved articles were searched for additional studies, conference abstracts were scanned, recent journal publications were manually searched and publishers of included articles were contacted in an attempt to identify unpublished trials. Search terms were reported.

Study selection
USA based controlled studies of smoking cessation interventions targeting more than 50% African American daily smokers over 17 years of age were eligible for inclusion. Interventions varied and included nicotine replacement, bupropion, individual counselling, counsellor telephone calls, targeted or tailored print materials, community outreach, video and radio media, or a combination of these. Control conditions also varied and included pharmacologic placebos, assessment only controls, usual care, attention placebos, or minimal contact controls. Intensity of the intervention was rated on a scale (1 to 8) ranging from minimal intensity (passive receipt of media) to maximum intensity (group or individual sessions). The main outcome measures were smoking abstinence post-treatment; abstinence at the first follow up assessment; and potential moderators of treatment effects. Studies in adolescents, pregnant women or patients with severe medical problems were excluded. The mean age of patients ranged from 22.2 to 55 years. Included study designs were not described.

The author did not state how the papers were selected for the review or how many reviewers performed the selection.

Assessment of study quality
Study quality was assessed by one reviewer using a modified version of a 12 item quality scoring system (as developed by Miller et al, 1995). Individual items and corresponding scores are reported in the paper.

A second reviewer assessed a sample of 10 studies and disagreements were resolved by consensus.

Data extraction
Data were extracted independently by two reviewers. Data on smoking status, treatment duration, biochemical verification and cultural specificity were used to calculate the odds ratios (OR) and corresponding 95% confidence intervals (CI). Data was extracted on an intention to treat (ITT) basis where possible.

Methods of synthesis
Meta-analysis was conducted to obtain pooled ORs and 95% CIs. It was not stated whether a fixed-effect or a random-effects model was used. Statistical heterogeneity was assessed using the Q statistic and the $I^2$ test. Moderator analyses were conducted irrespective of homogeneity of effect sizes where analysis of variance (ANOVA) was calculated for categorical variance and weighted regression for continuous variables.

Results of the review
20 studies (n=12,695) were included in the review and represented 32 hypothesis tests. The majority (85%) of studies used experimental longitudinal study designs and sample sizes ranged from 42 to 2,002 participants (mean = 637). Quality scores for post-test and follow up cessation effect sizes indicated that the studies were of good quality; 22% of studies met criterion for excellent methodology, 45% were good and 33% were adequate.

Smoking cessation at the initial assessment was found to be significantly higher in the intervention groups (19 studies, OR 1.41 (95%CI: 1.16, 1.73)) which continued at the first follow-up (12 studies, OR 1.31 (95%CI: 1.02, 1.69)). No significant heterogeneity was observed.

Treatment type, setting, cultural specificity, unit of analysis, outcome measure, nature of control group and biochemical verification moderated the overall treatment effect. In particular, the treatment effect for group counselling (2 studies, OR 1.86 (95%CI: 1.14, 3.04)) studies conducted in a church setting (3 studies, OR 1.69 (95%CI: 1.08, 2.65), and studies conducted in a clinic by a paraprofessional (5 studies, OR 1.48 (95%CI: 1.09, 2.01)) moderated the effect. However, this did not remain significant at follow-up.

Overall, the odds of quitting due to an experimental smoking cessation intervention were 40% greater than usual care or placebo; the odds of quitting were 30% greater than control conditions at follow-up; the efficacy of smoking cessation interventions varied as a function of seven of the 11 moderator variables tested.

Authors' conclusions
Smoking cessation interventions are an efficacious strategy for short term and sustained smoking abstinence among African American people; the clinical benefit is both meaningful and long term.

CRD commentary
The review addressed a clear question in terms of participants and outcomes. The included interventions were broad, although this was appropriate for a public health topic. A reasonable search for relevant studies was undertaken, however there appear to be databases that were not considered, particularly allied health resources. The potential influence of publication bias was not considered in the report but attempts were made to locate unpublished material. The author attempted to minimise bias and errors during parts of the review process by carrying out data extraction in duplicate. However, the process for study selection was not reported and the validity assessment was only check on a subset of included studies. The decision to pool data using meta-analysis is questionable, as studies were heterogeneous in terms of interventions. The author's conclusions appear to be based on the evidence presented but, because of the methodological limitations, it is difficult to say with confidence that the conclusions are reliably derived.

Implications of the review for practice and research
Practice: The author stated that practitioners should continue to promote smoking cessation treatment to African Americans.

Research: The author stated that research investigating traditional versus culturally-targeted group approaches, intensive individual behavioural therapies and theoretical models of behaviour change among African American smokers are needed. They also recommended that researchers should utilise CONSORT (Consolidated Standards for Reporting of Trials) or TREND (Transparent Reporting of Evaluations with Non-randomized Designs) recommendations to improve methodological quality.

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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.