Population tobacco control interventions and their effects on social inequalities in smoking

Centre for Reviews and Dissemination

CRD summary
This well-conducted review assessed the effects of population level tobacco control interventions on smoking related health inequalities. The authors concluded that these interventions have the potential to reduce health inequalities for disadvantaged groups. A need for further rigorous research in a number of specific areas was identified. Given the level of evidence presented, the authors' conclusions are likely to be reliable.

Authors' objectives
To evaluate the effects of population tobacco control interventions on social inequalities of smoking.

Searching
BIOSIS Previews, CINAHL, Cochrane library, EMBASE, EconLit, HMIC, HTA, ISI Technology Assessment database, MEDLINE, NHS EED, PAIS, PsycINFO, Science Citation Index, Social Science Citation Index and SIGLE were searched. Conference abstracts and reference lists of retrieved articles were scanned for additional studies. In addition, key journals were handsearched and authors were contacted when required. Search dates ranged from database inception to August 2006. Search strategies were reported. There were no language restrictions.

Study selection
Studies evaluating population level tobacco control intervention on smokers, those at risk of starting smoking, those at risk exposure to environmental tobacco smoke (ETS) or on the general population, that reported smoking behaviour or attitudes and associated qualitative outcomes for individuals or groups of different demographic or socioeconomic characteristics, were eligible for inclusion. Smoking cessation studies, studies conducted in closed settings and studies of sales restriction to minors reporting only test purchases were excluded. The main socio-economic variables of interest were based upon the PROGRESS criteria (defined in the review). Included studies evaluated workplace/school/public place restrictions, restrictions on sales to minors, health warnings on tobacco products, restrictions on advertising, pricing and multifaceted interventions. Most studies were non-UK based, with more than half in the USA. Participants included employees, students, general populations, adolescents and various sub-groups of adults. Outcomes were reported by race or ethnicity, occupation, gender, educational level, income or age.

Two reviewers independently assessed studies for inclusion. Any disagreements were resolved through discussion or with the aid of a third reviewer.

Assessment of study quality
One reviewer assessed study quality in terms of patient selection, randomisation, comparability at baseline, the credibility of the data collection tools, attrition and the likelihood the outcomes were attributable to the intervention. Disagreements were resolved by discussion or with the aid of a third reviewer.

Validity was assessed by one reviewer and independently checked by a second.

Data extraction
Changes in smoking prevalence were extracted and categorised by social gradient: no gradient (same response across socio-economic groups); positive gradient (greater response in less deprived socio-economic groups); or negative gradient (greater response in more deprived socio-economic groups).

Data were extracted by one reviewer and independently checked by a second. Disagreements were resolved by discussion or with recourse to a third reviewer.
Methods of synthesis
Studies were combined in a narrative synthesis and organised by the category of intervention and the dimensions of inequality as described above. Results were presented graphically (harvest plot). The colour of bars denoted 'hardness' of behavioural outcome measures, the height of the bars denoted the suitability of study design and each bar was annotated with performance out of six for achievement of methodological criteria. Differences between studies were discussed in the text and study details tabulated.

Results of the review
Eighty-four studies were included in the review; three were cluster RCTs and most of the others were cross sectional or retrospective. Only one study met all six quality criteria.

The highest quality studies evaluated restrictions on sales to minors and smoking in schools. There was no strong evidence for an increased effectiveness of smoking restrictions or bans in workplaces and public places in more advantaged groups. Restrictions in smoking in schools and restrictions on sales to minors may be more effective in girls and younger children. One study also showed that restrictions on sales were more effective in white students.

There was no evidence for advertising of tobacco products or health warnings on tobacco products being effective for the few social gradients evaluated.

Increasing the price of tobacco products was more effective in reducing smoking in adults of lower income, in manual occupations. There was also some suggestion that smokers of higher levels of education, adolescents and college students, 13 to 18 year old boys, and black or Hispanic 17 or 18 year olds, may be more sensitive to cost.

Limited evidence suggested that multifaceted interventions may be more effective in young people.

Authors’ conclusions
Population-level tobacco control interventions, particularly increasing the cost of tobacco, could have an important role to play in the reduction of smoking related health inequalities. There was little evidence that the interventions included in this review have the potential to increase inequalities.

CRD commentary
This review had well defined inclusion and exclusion criteria in terms of participants, interventions and outcomes. Despite the extensive searches of published and unpublished literature and contact with experts in the area the authors still felt that additional studies could have been missed. Therefore, publication bias can not be ruled out. Appropriate measures to reduce reviewer bias and error were taken at all stages of the review process. The methodological quality of studies was formally assessed and reported. Due to the heterogeneity across studies (in terms of study design, quality, intervention and outcomes), the authors’ decision to combine studies both narratively and to use the ‘harvest plot’ to synthesise and visualise the strength of the evidence was appropriate. Grouping studies by intervention was also appropriate. The authors’ conclusions and recommendations for further research reflect the evidence presented in this well-conducted review and are likely to be reliable.

Implications of the review for practice and research
Practice: If policies are to be introduced, these should be accompanied by extra measures to support smoking cessation for disadvantaged groups and in work-based interventions, to ensure adherence across all occupational grades.

Appropriately-enforced restrictions on sales to minors may be offer the greatest promise for tackling inequalities.

Research: Primary research needs to focus on the following areas: health warnings on tobacco products, restrictions on advertising, multiple interventions, restrictions in schools and restrictions on sales to minors. Further robust research should be prioritised to examine the effects of tobacco pricing on adolescents from lower income families, lower income adults, general populations of young people and the unemployed. Studies should have better reporting of methodological details, and should report changes in smoking behaviour as an outcome across different socio-demographic groups and should also include the effects of interventions on the health gradient. There is also a need to learn more about effects on social gradients for income, gender and ethnicity.
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