A systematic review of mammography educational interventions for low-income women
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CRD summary
The review concluded that peer-led interventions providing logistical assistance, based on multi-component strategies, are most effective in increasing uptake of mammography screening in low-income women. This conclusion is limited by the presentation of the available evidence, and also needs to be supported by studies that compare peer-led with non peer-led interventions.

Authors' objectives
To determine the effectiveness of community-based educational interventions in increasing mammography screening in low-income women.

Searching
MEDLINE, the Cochrane CENTRAL Register, the Cochrane Database of Systematic Reviews and ISI Web of Science were searched for English language publications (January 1980 to March 2003); the search terms were reported. Reference lists were also checked for additional articles. Only studies written in English were eligible for inclusion.

Study selection
Study designs of evaluations included in the review
Randomised controlled trials and cohort studies with a control group were eligible for inclusion.

Specific interventions included in the review
Studies of community-based educational programmes implemented by a trained individual (physicians, nurses, health educator or peer educator) were eligible for inclusion. Eligible control groups included: no active intervention; modified, less intensive interventions; and interventions aimed at influencing other health behaviours (e.g. cervical screening adherence). Studies administered in clinics, hospitals and other health care settings, or workplaces were excluded.

The included studies were all multi-component interventions and most had a dominant intervention strategy. The dominant interventions were: logistical assistance (including mammogram vans or mobile units alone or with free or low cost vouchers, cost vouchers or home visits); community education alone; referrals; multi-component interventions; phone calls; video and print; and printed material only. The comparator groups varied from minimal information, such as mailed reminders, to more intensive interventions including general health education seminars that had a breast cancer component.

Participants included in the review
Studies that targeted racial or ethnic minority or low-income women living in a given community, for example a city, county, metropolitan area, neighbourhood or public housing project, were eligible for inclusion. The authors appear to have only included studies with older women (65 years or older), although the age of the participants was often not reported.

Outcomes assessed in the review
The primary outcome of interest was the uptake of mammography screening. Studies that exclusively reported on other breast cancer activities, for example self-examinations or clinical breast examinations, or those that measured knowledge without reporting actual screening, were excluded.

How were decisions on the relevance of primary studies made?
Five reviewers determined the relevance of abstracts from the initial search and a majority consensus was reached on articles for full-text retrieval. Two reviewers determined the eligibility of those studies retrieved as full-text articles.
Assessment of study quality
The validity of each included study was assessed according to the following criteria: concealment of allocation; sample size calculation; greater than 80% follow-up; reporting on the outcomes of people who withdrew; comparability of the groups at baseline; blinding of the outcome assessors; and whether the groups were treated identically apart from the intervention of interest. It was not clear how many reviewers performed the validity assessment.

Data extraction
The authors did not state how the data were extracted for the review, or how many reviewers performed the data extraction.

The percentage uptake or rate of mammography screening and the significance level (where reported) were extracted from each included study.

Methods of synthesis
How were the studies combined?
The studies were combined in a narrative, grouped by the type of primary intervention.

How were differences between studies investigated?
Some differences were evident from the data tables. Differences between the studies were described in relation to the use of peer-educators, and by consideration of the primary intervention.

Results of the review
Twenty-four studies (n=92,010) met the inclusion criteria. The types of study designs used were not reported.

Methodological quality: the authors reported that 78% of studies concealed allocation; 26% reported a sample size calculation; 40% achieved greater than 80% follow-up; 52% reported on the characteristics of those who withdrew from the study; 26% reported no details on those who withdrew; and 17% based outcome analyses on intention-to-treat. Blinded outcome assessment was performed in 13% of studies and was not reported in 87%. Most studies (83%) had comparable groups at baseline; 13% reported no information on comparability and 9% noted small differences that were not accounted for in the analysis. Most studies (92%) treated the groups identically apart from the intervention of interest; 9% treated the groups differently.

Logistical assistance: the provision of a van or mobile unit alone (1 study) or in addition to free or low cost vouchers for mammograms (2 studies) was associated with a significant increase in mammography screening. The provision of cost vouchers was also associated with a significant increase in mammography screening (3 studies). Three of these studies used peer-educators or bilingual nurses matched to the target population. Four studies evaluated home visits as the primary intervention, of which three showed significant increases in the uptake of mammography screening.

Community education alone: the use of bilingual health educators to deliver community-based education was not associated with a statistically significant increase in the uptake of mammography screening (1 study).

Referrals: the provision of information on how to obtain mammogram in addition to core education was associated with a statistically significant increase in the uptake of mammography screening (1 study).

Multi-component interventions: of the 5 studies evaluated, four showed a significant increase in the uptake of mammography screening with multi-component interventions.

Telephone calls: of the 2 studies evaluated, one showed a significant increase in the uptake of mammography screening with telephone calls.

Video and printed material: a study that compared four different types of videos with corresponding flyer found that all were associated with a significant increase in the uptake of mammography screening compared with baseline.
Multicultural targeting and highlighting the dangers of not obtaining a mammogram were found to be most effective.

Printed materials: of the 5 studies that evaluated print materials as the primary intervention, two were associated with a statistically significant increase in the uptake of mammography screening.

Subgroup analysis: 8 of the 24 studies used peer educators to increase mammography screening, of which seven were associated with a statistically significant increase in the uptake of mammography screening. Of the 16 studies that did not use peer educations, only 5 studies reported a significant increase in the uptake of mammography screening.

Authors' conclusions
Interventions that were peer-led, incorporate multiple intervention strategies, or provide easy access via vans, low cost vouchers or home visits, were effective at increasing the uptake of screening.

CRD commentary
The review question was supported by defined inclusion criteria for the intervention, population, study design and outcome. The search was limited to English language studies in two major databases, with no explicit attempt to identify unpublished studies; the possibility of language and publication bias cannot, therefore, be ruled out. Methods were used to minimise bias when selecting studies for inclusion, although it was unclear whether similar methods were used in the data extraction and validity assessment processes. Validity was assessed using appropriate criteria, but the results were not discussed in relation to any methodological limitations of the included studies.

The details presented on each study were limited, although variations in intervention components, duration and mode of delivery were apparent. Such incomplete details meant that it was not possible to assess whether the included studies considered the potential for clustering effects that arise from randomisation by group (for example a community) instead of individuals. Furthermore, the majority of the studies were multi-factorial and had varying control groups, which meant it was difficult to assess the exact effect of the educational component on the outcome of interest. The authors did attempt to explore the components of interventions effective in the uptake of screening, however, studies that compare peer-led with non peer-led interventions are needed to strengthen the authors' conclusion. This is of particular importance as it is possible that some of the non significant results in the non peer-led group might have been due to content and type of intervention rather then the mode of delivery. Furthermore, it should be noted that the majority of included studies were conducted in the USA, which may impact on the generalisability of the results to other countries with different health care systems. Overall, taking into consideration the aforementioned limitations, the authors' conclusions should be treated with some caution.

Implications of the review for practice and research
Practice: The authors stated that the use of barrier-reducing strategies and peer-educators in mammography screening interventions in low-income women was supported.

Research: The authors stated that research is needed to identify the types of interventions that are efficacious in reducing persistent socioeconomic inequalities, and to understand the role of peer-led, access enhancing and tailored messages in reaching underserved populations.

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