Effectiveness of interventions to prevent sexually transmitted infections and human immunodeficiency virus in heterosexual men: a systematic review

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Authors' objectives
To evaluate the evidence for the effectiveness of social and behavioural interventions to promote men's sexual and reproductive health, and to answer the question 'Which interventions are successful in reducing the transmission of sexually transmitted infections (STIs) including human immunodeficiency virus (HIV) in heterosexual men?'

Searching
AIDSLINE, ASSIA, IBSS (via BIDS), EMBASE (via BIDS), British Nursing Index, CINAHL, the Cochrane Database of Systematic Reviews, CRIB, DARE, ERIC, HealthPromis, HealthSTAR, Health-CD, Helping Involve Men, HMIC, MEDLINE, the National Research Register (UK), OCLC PapersFirst and ProceedingsFirst, POPLINE, PsycINFO, SIGLE and Sociological Abstracts were searched from inception to 1999, 2000 or 2001 for articles in any language. The MEDLINE search terms were reported in full. Four key journals (AIDS, AIDS Care, International Journal of STD and AIDS, and Sexually Transmitted Diseases) were handsearched, as were the reference lists of all studies meeting the reference criteria. Information on unpublished work or research in progress was requested from the first authors of all of the included studies.

Study selection

Study designs of evaluations included in the review
Randomised or non-randomised controlled studies, prospective observational studies, or retrospective observational studies were eligible.

Specific interventions included in the review
Prevention or intervention programmes that focused on reducing heterosexual risk behaviour for STIs were eligible. The focus was on interventions with a social psychological, behavioural or educational component. The actual interventions included: on-site individual counselling, HIV testing, mass communications regarding risk reduction, and multiple-component motivation and skills education in STI clinics.

Participants included in the review
Studies involving heterosexual men aged 15 years and older were eligible. The data on the sexual behaviour of heterosexual men had to be presented and analysed separately from other groups included in the study, or at least 80% of the study participants had to be heterosexual men aged 15 to 50 years. The included populations were: drug users receiving treatment; injecting drug users out of treatment; patients of sexually transmitted disease clinics; men in the workplace; students; African American men attending clinics; prisoners; homeless men with psychiatric problems; and military men.

Outcomes assessed in the review
The primary studies had to include at least one of the following outcomes: morbidity (new or reinfection with STI, including HIV); behavioural outcomes, e.g. condom use or reduction in the number of sexual partners; and social psychological outcomes, e.g. attitudes toward condoms or HIV, or intentions to use condoms.

How were decisions on the relevance of primary studies made?
Studies located by the search strategy were coded for inclusion using a custom checklist. Two authors tested the reliability of this checklist on a sample of 25 studies. One author coded the remaining studies for inclusion.

Assessment of study quality
The methodological quality of eligible studies was assessed using one of two checklists. Randomised controlled trials (RCTs) or prospective comparative observational studies were rated with a version of a validated quality tool (see Other).
Publications of Related Interest no.1. Question 2 of the original checklist was adapted to read ‘Was this study single blind?’ instead of ‘double blind’. A maximum score of 4 was assigned to each study. Prospective before-and-after studies or retrospective observational studies were rated using a methodological quality tool with a maximum quality score of 5 (see Other Publications of Related Interest no.2). Studies that received a quality score of one or lower on the basis of these checklists, were excluded from the review. Two authors independently assessed the methodological quality of those studies meeting the first four inclusion criteria using one of two checklists. Any discrepancies were resolved through consensus.

Data extraction
A single author extracted the data from studies meeting the inclusion criteria using a checklist (see Other Publications of Related Interest no.2). The tabulated fields included design, outcomes, description, results and quality score.

Methods of synthesis
How were the studies combined?
The studies were grouped by population and combined in a narrative review.

How were differences between studies investigated?
The authors do not report a method for investigating heterogeneity between the studies.

Results of the review
Twenty-eight studies met the inclusion criteria: 21 RCTs and 7 prospective experimental studies, 6 of which did not have a control or a comparison group.

Details of the results from all of the included studies were presented in the review.

1. Drug users receiving treatment (2 RCTs, 1 observational study): the results for an increase in condom use and a decrease in the number of sexual partners were inconsistent. 2. Injecting drug users out of treatment (2 RCTs): no change in condom use or the number of sexual partners was reported in one trial; another RCT reported an increase in condom use in both the intervention and control groups.

3. Men in the workplace (3 observational studies): a significant reduction of STI incidence was found in one study. The results for increased condom use and a decrease in the number of sexual partners were inconsistent. 4. Patients of sexually transmitted disease clinics (9 RCTs, 1 observational study): inconsistent results were reported in 4 RCTs that measured STI incidence after the intervention. One study reported a decrease in STIs in both the intervention and control groups. Condom use increased in the experimental groups of 2 studies. Three studies reported an increase in condom use in both the experimental and control groups. The intention to use condoms increased in 2 studies, but not in another. Inconsistent results were found in 2 studies addressing attitudes toward condoms. One study showed a positive intervention effect on the knowledge of AIDS, while another reported no effect. Skills training in relation to communication with sexual partners about the risk of AIDS and condom use showed a significant intervention effect in 2 studies.

5. Students (6 RCTs): a decrease in the frequency of unprotected sex among men in both the intervention and control groups was found in one trial; the other 5 trials reported inconsistent effects of the interventions on condom use.

6. African American men via outreach (1 RCT): no intervention effect on condom use was found.

7. Prisoners (1 observational study): a significant increase in the knowledge of AIDS was reported. 8. Homeless men with psychiatric problems (1 RCT): there was a positive intervention effect on the frequency of unprotected sex, condom use and the number of sexual partners.

9. Military men (1 cohort study): a significant reduction in the incidence of new STIs was found.

10. Reduction in STI and HIV incidence: of the 8 interventions designed to reduce STI incidence (including HIV), 5
were successful, 2 were unsuccessful, and one gave a reduction in both the intervention and control groups.

A variety of methods were used (see 'Specific Interventions' field).

**Authors' conclusions**
No single intervention could be identified as being more effective than others in reducing the incidence of STI and HIV in heterosexual men.

**CRD commentary**
The review asked a clear question and used a comprehensive search strategy to locate the studies. The review was conducted explicitly and appropriately. The authors acknowledged that their analysis was limited by the extreme heterogeneity of the studies in terms of their design, populations, outcomes measured and reporting.

The conclusions seem to follow from the review.

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

Research: The authors state that more high-quality research into the effectiveness of interventions targeting heterosexual men is needed, in particular, methodologically-sound trials to evaluate the effects on morbidity. Research is particularly indicated in regions where the rates of STI and HIV are high among heterosexual men (sub-Saharan Africa) and where they are increasing (Asia, Eastern Europe, Central Asia).

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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.