Behavioural interventions for HIV positive prevention in developing countries: a systematic review and meta-analysis

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CRD summary
This review evaluated positive prevention intervention in individuals infected and not infected with HIV in developing countries. The authors concluded that interventions that targeted people living with HIV increased condom use, especially among HIV serodiscordant couples. The authors' conclusion reflects the evidence, but potential publication bias and suboptimal study quality made the reliability of this conclusion unclear.

Authors' objectives
To determine whether there was a differential effect of positive prevention intervention in individuals infected and not infected with HIV in developing countries and determine the effectiveness of interventions targeted solely at individuals living with HIV.

Searching
MEDLINE, PsycINFO, EMBASE, CINAHL and Sociological Abstracts were searched for articles published in any language between 1990 and 2006. Search terms were reported. Related systematic reviews were examined, reference lists of included articles were scanned and a handsearch of four relevant journals was carried out to locate additional studies.

Study selection
Studies that compared post-intervention outcomes (pre/post, and multi-arm designs) in relation to HIV-specific behavioural interventions conducted in a developing country (World Bank classifications) were eligible for inclusion. Included studies had to report behavioural, psychological, social, care or biological outcomes. Studies had to provide stratified data according to HIV serostatus or have a prime focus on HIV positive individuals.

Studies were located in sub-Saharan African countries, Asia, South America, Trinidad and Tobago. Interventions were largely focused on HIV counselling and testing. Most of the studies included heterosexual adults or HIV serodiscordant couples and were conducted (where reported) in a clinical or home setting. Other studies included commercial sex workers and pregnant women. Outcome measures were inconsistent across the included studies and largely based on self-report. Male condom use was the only outcome eligible for meta-analysis. Other outcomes included contraceptive use, multiple sex partners and HIV serostatus disclosure.

Initial study selection was carried out by one reviewer and two reviewers applied the inclusion criteria to the citations. Disagreements were resolved by discussion.

Assessment of study quality
Study quality was assessed on an eight-point scale, with one point awarded each for prospective cohort design, control or comparison group, pre- and post-intervention data, random assignment, use of intention-to-treat, at least 80% follow-up, baseline comparability of groups on socio-demographic measures and outcome measures.

The authors did not state how many reviewers carried out the quality assessment.

Data extraction
Where possible, data were extracted or calculated to enable presentation of odds ratios (ORs) and 95% confidence intervals (CI). Authors were contacted for data clarification, where necessary.

Data were extracted by two independent reviewers. Disagreements were resolved with a third reviewer.
Methods of synthesis
A meta-analysis was carried out for the outcome of male condom use. A random-effects model was used. Statistical heterogeneity was measured and quantified with Q and I². Other outcomes were synthesised narratively.

Results of the review
Eighteen articles (19 studies) were included in the review. Average quality score was 3.9 (range 1 to 8). Seventeen studies were reported to be prospective cohorts. Four studies used some form of participant randomisation. Eight studies had a control/comparison group. All reported pre- and post-intervention data. Twelve studies reported at least 80% follow-up.

Differential effect of interventions by serostatus (nine studies): Pooled analysis showed a statistically significant differential effect between HIV positive and HIV negative individuals in terms of condom use (four studies, n=4,322 participants). In HIV positive individuals, condom use was significantly increased (OR 3.61, 95% CI 2.61 to 4.99, I²=0%). The result for HIV negative individuals was not statistically significant (I²=85%). There was no statistically significant difference between individual and couples counselling. A very limited intervention effect was reported for contraceptive use (two studies).

Interventions that targeted HIV positive individuals (10 studies): Pooled analysis showed a statistically significant effect on condom use (OR 7.84, 95% CI 2.82 to 21.79, I²=96%; seven studies, n=1,801). Differences between HIV positive heterosexual individuals and HIV serodiscordant couples were significantly different; the latter population group showed a substantially increased effect (OR 67.38, 95% CI 36.17 to 125.52, I²=0%, three studies, n=312). Two studies showed a modest decrease in the number of participants who reported sexual activity with non-primary partners. Two studies showed increases in HIV status disclosure.

Authors’ conclusions
Interventions that targeted people living with HIV in developing countries increased condom use, especially among HIV serodiscordant couples.

CRD commentary
The review question was clear and supported by potentially replicable inclusion criteria. The search strategy included several relevant data sources. The restriction to published studies may have introduced publication bias. Attempts were made to minimise language bias. The review process was conducted with some attempts to minimise error and bias. Appropriate criteria were used to assess study quality and a breakdown of scores was provided. Study details were provided. Statistical heterogeneity was assessed and considered in the chosen method of synthesis. The authors acknowledged potential review limitations linked to the design of included studies, reliability of outcome measures and generalisability.

The authors’ conclusion reflects the evidence presented, but potential publication bias and the suboptimal quality of studies made that the reliability of this conclusion unclear.

Implications of the review for practice and research
Practice: The authors stated that comprehensive positive prevention programmes were needed to target diverse populations with a range of intervention modalities. HIV prevention messages and services should be integrated into HIV care and treatment settings as well as HIV testing and counselling programmes. Community and clinic-based programmes should be linked.

Research: The authors stated that further research was needed with high-risk populations, such as commercial sex workers, injection drug users and men who had sex with men. Future rigorous research should assess biological outcomes, where appropriate.

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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.