Effectiveness of the 40 adolescent AIDS-risk reduction interventions: a quantitative review

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Authors' objectives

To review the effectiveness in adolescents of prevention interventions for AIDS, and in addition to examine the relation between intervention design issues and outcome measures.

Searching

AIDSLINE, MEDLINE, PsycLIT, CINAHL, and Current Contents were searched for articles published between January 1983 and November 1995, using the search words terms 'AIDS', 'HIV', 'health education', 'adolescents/adolescence', 'prevention', 'intervention' and 'evaluation'.

Additional studies were located by searching all articles cited in the retrieved studies, and by handsearching 11 journals (from 1983 to 1995; publication list given in authors' text) that focused on adolescents and/or behavioural interventions. Efforts were also made to identify recently completed studies through conference abstracts and personal communications.

Study selection: study designs

Randomised controlled trials (RCTs) and non-RCT designs, although results were reported separately and only RCTs were included in the meta-analysis.

Study selection: specific interventions

Educational awareness.

Study selection: participants
Adolescents with a mean age of 14.3 years (standard deviation, SD=1.31; range: 10 to 18) were included. University students were excluded.

**Study selection: outcomes**

Improved attitudes about AIDS risk and protective behaviours, knowledge of risks, increased intention to abstain from sexual intercourse or to use condoms, and reduced sexual risk behaviours.

**Study selection: how were decisions on the relevance of primary studies made?**

The authors do not state how the papers were selected for the review, or how many of the authors performed the selection.

**Validity assessment**

Several design issues were used to assess validity and a point-scoring system was employed to quantify the results (1 = yes, 0.5 = implied or uncertain, 0 = no). The design issues were:

- Was the intervention based on a theory? Did the intervention address cultural and/or community issues?
- Did the intervention address developmental issues?
- Did the study describe the specific content covered in the intervention (presentation of facts, training in coping skills)?
- Did the study describe the channel used to deliver the intervention?
- Where the characteristics used to select the interventionists stated?
- Did the study specify the dose and/or duration?
- Were boosters provided?
- Was the intervention piloted?

Two groups of two reviewers were used. Within each group, both reviewers independently assessed the included studies and any discrepancies between them were addressed in a meeting of all four reviewers.

**Data extraction**

Two groups of two reviewers were used. Within each group, one reviewer extracted the data and the other checked the completed extraction sheet. Any discrepancies between the two reviewers in a group were addressed in a meeting of all four reviewers. Authors were also contacted for any additional information necessary to carry out the analysis.

**Methods of synthesis: how were the studies combined?**

The percentage of studies that recorded an improvement was calculated for each of the outcomes under evaluation. For meta-analysis, numbers were aggregated across the studies according to the treatment components, and combined proportions were tabulated and contrasted through chi-squared analysis. The Mann-Whitney test was used to assess the relationship between intervention dose and intervention impact.
Methods of synthesis: how were differences between studies investigated?

Chi-squared or Fisher's Exact test (dependent on sample size) was used to assess the impact of study design rigour on outcome, and the association between outcome and each intervention factor. In addition, the relationship between the total number of intervention design issues addressed and each outcome was assessed by the Mann-Whitney test. Results were also analysed separately for RCTs and non-RCTs.

Results of the review

Forty studies were included. Thirty-two were RCTs, of which only 4 provided sufficient detail on outcomes to be pooled by meta-analysis.

Percentage of studies recording a positive intervention impact:

changes in knowledge, 88%;
changes in attitude, 58%;
changes in intention to use condoms, 60%;
condom use, 73%; and
decrease in the number of sexual partners, 64%.

Interventions that demonstrated an increase in intention to use a condom were significantly more likely to be theory-based than those that did not show any significant changes in intention (100 versus 0%, p=0.048). Interventions that increased condom use and decreased the number of sexual partners were longer in duration than those that did not improve these outcomes. The meta-analysis (n=4) showed a significant reduction in the proportion of participants who indicated using a condom at their last episode of sexual activity for a 6-month (p=0.005) and 12-month (p=0.015) follow-up. No differences were found in the proportion of participants who always used a condom.

Authors' conclusions

AIDS risk reduction interventions can be effective in improving knowledge, attitudes and behavioural intentions, and in reducing risk practices. The positive relationship between improved outcomes and several elements of intervention design underscores the need for an increased focus on intervention design in future studies.

CRD commentary

1. The search is very thorough and well-described, it is unlikely that the authors have missed a substantial body of literature.
2. Inclusion criteria are stated, but the method by which they are applied is not stated. The inclusion of only studies that were conducted in the USA will limit the generalisability of the conclusions, since cultural differences are likely to exist between the intervention population in the USA and that of the UK.

3. The validity assessment of study design is well-described.

4. Details on the primary studies included in the review are limited. There is little information on the patients' characteristics, the specific nature of the interventions, and the methods of outcome assessment used in the individual studies.

5. Data synthesis is valid. Generally, this is a good review that attempts to link issues such as theoretical basis, design and intervention details to the outcomes measured.

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