Interventions to reduce sexual risk for human immunodeficiency virus in adolescents: a meta-analysis of trials, 1985-2008
Johnson BT, Scott-Sheldon LA, Huedo-Medina TB, Carey MP

CRD summary
The review concluded that comprehensive behavioural interventions reduced risky sexual behaviour and prevented transmission of sexually transmitted infections; interventions were most effective when they delivered intensive content. The variable quality of the evidence base and differences across the studies limits the reliability of the pooled results.

Authors’ objectives
To provide an updated review of the efficacy of behavioural interventions to reduce sexual risk of HIV (human immunodeficiency virus) among adolescents.

Searching
MEDLINE, PsycINFO, CINAHL, ERIC and Dissertations Abstracts were searched to December 2008. The search was based on an update of a previous review (see Other Publications of Related Interest). Reference lists of retrieved articles and key journals were manually searched. Experts in the field were contacted.

Study selection
Randomised controlled trials (RCTS) and quasi-experimental studies with rigorous control that evaluated an educational, psychosocial or behavioural intervention that used interpersonal contact and advocated sexual risk reduction in adolescents (aged 12 to 19) were eligible for inclusion. Studies had to have behavioural-dependent measures relevant to sexual risk and provide information needed to calculate effect sizes. Studies that did not emphasise HIV content were excluded.

The included studies were primarily conducted in medium to large cities in USA. The interventions studied generally included HIV/AIDS education and active interpersonal skills training. Some studies also studied management skills training, condom information/demonstration and motivational content. The interventions were mostly conducted in groups, met for a median of 13 sessions of 75 minutes each and had one facilitator. The mean age of participants was 15 years. Almost half of the participants were of African American or African ethnicity. The control group was typically wait list/no control or standard HIV education. Condoms were provided to 19% of intervention groups and 13% of control groups.

Four reviewers appeared to perform study selection independently. Disagreements were resolved by discussion.

Assessment of study quality
Twelve quality items, included randomisation and follow-up rate, were assessed to give a maximum score of 17.

Four reviewers independently performed quality assessment. Disagreements were resolved by discussion.

Data extraction
Data were extracted on self-reported outcomes (condom use and sexual frequency) and objective measures (condom use skills, interpersonal communication, indirect behaviour markers, incident of sexually transmitted infections). These were used to calculate effect sizes, together with 95% confidence intervals (CIs). Trial authors were contacted for missing data.

Four reviewers independently performed data extraction. Disagreements were resolved by discussion.

Methods of synthesis
Random-effects meta-analysis was used to calculate pooled weighted mean effect sizes and odds ratios (OR), each with 95% CIs. Statistical heterogeneity was assessed with $I^2$. The weighted least-squares regression method was used to examine moderators of sexual frequency and condom use.
Results of the review
Sixty seven studies (51,240 adolescents) were included in the review. The methodological quality of studies was generally moderate (median 9, range 3 to 15).

Compared with control, there was a statistically significant reduced incidence of sexually transmitted infections diagnosed (OR 1.72, 95% CI 1.39 to 2.17, I²=85%). There was also a statistically significant benefit of interventions on sexual behaviour and behavioural skill outcomes; most of these studies demonstrated statistical heterogeneity (I²>75%). The greatest improvement was seen with condom use skills (OR 4.72, 95% CI 2.17 to 10.24, I²=90%). The one outcome that was not statistically significant was condom use, anal partner (eight interventions).

Regression analysis indicated that four factors were successful in reducing sexual frequency: institutionalised, intervention had no abstinence focus, intervention had a greater number of sessions and control group had no HIV content. Three factors were successful in increasing condom usage: greater condom skills training, motivational training and intervention group reduced frequency of sexual encounters compared with control group.

Authors’ conclusions
Comprehensive behavioural interventions reduced risky sexual behaviour and prevented transmission of sexually transmitted infections; interventions were most effective when they delivered intensive content.

CRD commentary
Inclusion criteria for the review were clearly defined and several relevant data sources were searched. Publication bias was not assessed and could not be ruled out. Attempts were made to reduce reviewer error and bias throughout the review process. Quality assessment indicated that the quality of the studies was variable; some studies scored as low as 3 out of 17.

The included studies varied considerably in terms of patient characteristics, interventions and study types. Trials were combined using standard statistical methods and statistical heterogeneity was assessed. There was significant statistical heterogeneity across many of the outcomes, which may indicate that the studies were not suitable for pooling.

The variable quality of the evidence base and differences across the studies limits the reliability of the pooled results.

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

Funding
National Institutes of Health, USA.

Bibliographic details

PubMedID
21199984

DOI
10.1001/archpediatrics.2010.251

Original Paper URL
http://archpedi.ama-assn.org/cgi/content/abstract/165/1/77

Other publications of related interest
Indexing Status
Subject indexing assigned by NLM

MeSH
Adolescent; Child; Female; HIV Infections /prevention & control; Health Promotion /organization & administration; Humans; Male; Program Evaluation; Randomized Controlled Trials as Topic; Risk Reduction Behavior; Risk-Taking; Safe Sex; Sex Education /organization & administration; Sexual Behavior; United States; Young Adult

AccessionNumber
12011000863

Date bibliographic record published
08/06/2011

Date abstract record published
03/04/2012

Record Status
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.