School-based teenage pregnancy prevention programs: a systematic review of randomized controlled trials

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CRD summary

This review aimed to compare the effectiveness of abstinence-only secondary-school-based pregnancy prevention programmes with abstinence-plus programmes that incorporate contraceptive information. The authors concluded that the variability and paucity of studies precluded a definitive conclusion. However, most abstinence-plus programmes increased rates of contraceptive use. The authors' conclusions are likely to be reliable.

Authors' objectives

To compare abstinence-only secondary-school-based pregnancy prevention programmes with abstinence-plus programmes in terms of their effects on teenage sexual behaviour, contraception knowledge, contraceptive use and pregnancy rates. Abstinence-plus programmes incorporate information on contraception and the prevention of sexually transmitted infections into the curriculum, along with abstinence education.

Searching

PubMed, CINAHL, BIOSIS Previews, EMBASE and the Cochrane Library were searched from January 1980 to September 2002; the search terms were reported. The reference lists of retrieved articles were also checked for additional studies. The authors did not state whether any language restrictions were applied to their search. However, only American studies were eligible for inclusion in the review.

Study selection: study designs

Randomised controlled trials (RCTs) were eligible for inclusion in the review. The follow-up times ranged from 7 weeks to 48 months; only one study had a follow-up period of less than 6 months.
Study selection: specific interventions

Studies of secondary-school-based pregnancy prevention programmes in the USA were eligible for inclusion. Studies of programmes with a focus on the prevention of the human immunodeficiency virus (HIV) were also included. Only American programmes were eligible for inclusion. Studies of programmes in the general community or clinics were not eligible for inclusion. The included studies evaluated the abstinence-only programme in comparison with an abstinence-plus intervention or the school district's existing pregnancy prevention curriculum, or the abstinence-plus programme in comparison with the school district's existing pregnancy prevention curriculum. Interventions that did not mention the provision of contraceptive information were classified as 'abstinence-only'.

Study selection: participants

Studies of children attending secondary school were eligible for inclusion. The studies included children of both genders and of various ethnic origins, who were attending the 6th to 12th grades in inner-city, urban and suburban schools. Where reported, the children were generally from low economic status families.

Study selection: outcomes

Studies that assessed sexual behaviour, contraceptive behaviour and pregnancy rates were eligible for inclusion in the review.

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

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

Validity assessment

The authors did not state that they assessed validity.

Data extraction

The authors did not state how the data were extracted for the review, or how many reviewers performed the data extraction. The studies were classified as 'abstinence-only' or 'abstinence-plus' based on the description of the intervention. The age of initiation of the intervention, the frequency of intercourse, number of partners and incidence of condom use were extracted.

Methods of synthesis: how were the studies combined?
The studies were combined in a narrative.

Methods of synthesis: how were differences between studies investigated?

Heterogeneity was not formally assessed, although the authors stated that heterogeneity in terms of participants, interventions, outcomes and follow-up times prohibited the use of a meta-analysis. Study details were tabulated and differences were discussed in the text.

Results of the review

Sixteen RCTs were included in the review; however two of the abstinence-plus studies used the same data set. The total number of included participants was 29,599.

Abstinence-only programmes (3 studies).
Two studies reported no significant change in the frequency of intercourse or number of partners. One of these also reported no significant change in age of initiation, contraceptive use or pregnancy rate. The third reported an increase in the age at which sexual behaviour was initiated.

Abstinence-plus programmes (12 studies).
Of the 8 studies reporting the age of initiation, five reported no significant change, two reported a significant increase in the age of initiation of sexual behaviour (one in boys only and the other in girls only), and one reported a significant decrease in the age of initiation.

Eight studies reported the frequency of intercourse, of which three reported no significant change, four a significant decrease in frequency and one a significant increase in frequency. None of the 5 studies reporting the number of partners reported a significant change with abstinence-plus programmes.

Of 5 studies reporting knowledge about contraception, four reported significant increases in knowledge (one in females only and one in males only), and one no significant change. Six of the 9 studies reporting contraceptive use reported an increase with abstinence-plus programmes, and a seventh an increase in males and a decrease in females. One study reported a significant decrease in females only, whilst another found no significant change in contraceptive use. Four of the 5 studies reporting condom use reported no significant change, while one reported an increased use of condoms. Only one study reported pregnancy rates, with no significant effect of abstinence-plus programmes.

Abstinence-only compared with abstinence-plus programmes (1 study).
This study reported no significant difference between the interventions in relation to age of initiation of sexual behaviour or frequency of intercourse. Those receiving abstinence-plus programmes had a significant increase in contraceptive knowledge and use and condom use.

Authors' conclusions

The variability and paucity of studies comparing abstinence-only with abstinence-plus interventions precluded a definitive conclusion about which type of programme is most effective. However, the results of this review indicated that the majority of abstinence-plus programmes increase rates of contraceptive use,
with one study showing effects to last for at least 30 months.

**CRD commentary**

The review question was clear. Several relevant electronic databases were searched and the search terms were reported, but no attempts were made to identify unpublished studies. Only American programmes were included in the review, which seemed appropriate given the impact of culture on pregnancy rates, differences in baseline pregnancy rates, and varied media and public health messages from country to country. The authors did not state how studies were selected for the review or how the data were extracted, therefore the potential for errors and reviewer bias cannot be ruled out. The authors did not state that they assessed the validity of included studies.

Adequate details of the individual studies were presented. Whilst the authors did not report a method for formally assessing heterogeneity, they stated that heterogeneity in terms of participants, interventions, outcomes and follow-up times prohibited the use of meta-analysis; the narrative synthesis appeared appropriate. This was a relatively well-conducted systematic review, which would have benefited from an assessment of study validity as well as procedures to reduce the potential for reviewer error and bias. The authors’ conservative conclusions appear appropriate given the evidence presented.

**Implications of the review for practice and research**

Practice: The authors stated that in the absence of strong evidence that abstinence-only or abstinence-plus school-based programmes affect sexual activity, the prohibition of contraceptive education in school-based pregnancy prevention programmes prevents student exposure to information that has the greatest potential to decrease the pregnancy rate. However, community attitudes may ultimately determine the acceptability of publicly funded school-based sex education programmes.

Research: The authors did not state any implications for further research.

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