Interventions using new digital media to improve adolescent sexual health: a systematic review


CRD summary
The authors concluded that new digital media had great potential to engage and support youth sexual health and that literature describing and evaluating this media will benefit from processes of rapid dissemination and continuous updates. The unknown quality of the included studies and their mixed findings suggest that the reliability of the authors' conclusions is uncertain.

Authors' objectives
To evaluate the effectiveness of new digital media-based sexual health interventions for adolescents aged 13 to 24 years.

Searching
Eight electronic databases (including PubMed) were searched from January 2000 to May 2011 for peer-reviewed literature in English. Search terms were reported. Reference lists of retrieved articles were handsearched and experts were contacted to locate further studies.

Study selection
All studies where at least 50% of the population were aged 13 to 24 years or where analyses were stratified for this specific age range were eligible for inclusion. Eligible studies empirically evaluated the impact of digital media-based interventions on youth sexual health knowledge, attitudes or behaviours. New digital media was defined as user-driven interactive forms of communication (examples fully stated in paper). Outcomes were measured within the domains: sex, sexually transmitted infections, HIV, reproduction, contraception and condoms.

Seven studies were conducted in the United States, two in China and one each in Kenya and Brazil. Participant age ranged from 12 to 24 years (where reported). Two interventions enrolled HIV-positive youths; one enrolled youths with substance use disorders. All interventions except two were web-based, one used mobile phones and another used a social networking site. Most studies did not specify the behavioural theories underpinning the interventions. Intervention content included basic information (such as reproduction, pregnancy), risk reduction strategies (such as contraceptive/condom use), participant skills (such as refusing sex, condom/contraceptive use) and related topics (reported in paper). Intervention duration and intensity varied from a single email to 24 sessions of 45 minutes over two years.

One reviewer screened titles and abstracts and two reviewers independently assessed full texts for inclusion. Discrepancies were resolved by consensus and involvement of additional reviewers.

Assessment of study quality
The authors did not state that they assessed study quality.

Data extraction
Changes in outcomes were extracted by multiple reviewers. Preference was given to adjusted estimates, where both adjusted and unadjusted estimates were given.

Methods of synthesis
Results were presented within a narrative synthesis. Only findings relevant to adolescent changes in sexual health knowledge, attitudes and/or behaviours were presented.

Results of the review
Eleven studies (10 articles) were included in the review: three cluster RCTs (2,590 participants), four individually randomised RCTs (1,811 participants), two quasi-experimental studies (3,229 participants) and two single-arm pilot
studies (40 participants). Study sample sizes ranged from eight to 1,892. Follow-up ranged from immediately after intervention to two years. Attrition rates ranged from 3% to 57%; attrition was not reported to significantly bias any of the studies' results.

Three interventions showed statistically significant effects of interventions on youth behaviours. Seven interventions significantly impacted psychosocial outcomes (positively and negatively). All six studies that evaluated impacts of interventions on knowledge found significant positive effects, particularly in relation to HIV and sexually transmitted infections. The results were reported fully in the paper.

**Authors' conclusions**
New digital media has great potential to engage and support youth sexual health; literature describing and evaluating this media will benefit from processes of rapid dissemination and continuous updates.

**CRD commentary**
The review question was clear and supported by appropriate inclusion criteria. A broad range of relevant databases were searched and attempts were made to locate further literature. The inclusion of only peer-reviewed literature in English meant that there was a high risk of language and publication biases. Effort was made to reduce reviewer error and bias during the screening of full-text articles; it was unclear whether data extraction was conducted by independent reviewers and whether studies were assessed for quality.

The unknown quality of the studies made it difficult to assess the reliability of the results from individual studies and to know how much they might contribute to the review's synthesis of results. Study characteristics were presented. The narrative method of synthesis seemed appropriate given the clinical and methodological differences across the studies. Mixed results were shown for some outcomes both within and between individual studies.

The unknown quality of the included studies and their mixed findings suggest that the reliability of the authors' conclusions is uncertain.

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

**Practice:** The authors did not state any implications for further practice.

**Research:** The authors stated that further research should use longer follow-up periods, include measurement of behavioural outcomes and consider alternative methods of evaluation that were most suitable for technology-based interventions. Further research should consider aspects of existing theories that are best-suited to technology-based interventions and whether new theories that address the unique opportunities presented by new digital media might be required.

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