



This Evidence bulletin summarises a recently published systematic review on The Cochrane Library

review title

## Interactive computer-based interventions for sexual health promotion

(Bailey et al. 2010)

Focus of the review

### Research question:

Do interactive computer-based interventions (ICBI) for sexual health promotion, for people of any age, gender and nationality, have an effect on cognitive, behavioural, biological and economic outcomes (eg. knowledge, consistency of condom use, sexually transmitted infections rate, and cost effectiveness).

### Why authors did the review:

Sexual health promotion is a major public health challenge. Digital technology such as the Internet offers exciting potential for sexual health promotion, and ICBI seem effective for HIV-related sexual health promotion; however, it is not known whether ICBI are effective for other sexual health problems, nor whether they are as effective as 'face-to-face' sexual health interventions.

Key results of the review

### What the review shows

When comparing ICBI with minimal interventions (eg. usual practice or information leaflet) meta-analysis showed *statistically significant* effects in favour of ICBI as follows:

- There was a moderate improvement in **sexual health knowledge**;
- A small improvement in **self-efficacy**;
- A small improvement in **safer-sex intentions**; and
- A small improvement in **sexual behaviour**.

There were insufficient data to draw conclusions about **biological** outcomes (eg. sexually transmitted infections (STI) rate), **cost effectiveness** and **harms** (eg. unintended adverse effects attributable to the intervention).

When comparing ICBI with face-to-face interventions (non-computerised, 'face-to-face' sexual health education) meta-analysis showed a *statistically significant* effect in favour of ICBI as follows:

- A small improvement in **sexual health knowledge**.

There were insufficient data to draw conclusions about **biological** outcomes, **cost effectiveness** and **harms**.

When comparing different types of ICBI interventions:

There were insufficient data to identify the most effective ICBI type or features of ICBI interventions.

## Background

There is huge potential for health promotion via technology such as the Internet. Interactive computer-based interventions (ICBI) are programmes that provide information and also decision support, behaviour-change support, and/or emotional support for health issues.

'Interactive' programmes require contributions from users to produce tailored materials and feedback that is personally relevant. ICBI have shown to be effective in promoting behaviour change for people with chronic diseases and in other contexts (problem drinking, smoking cessation, nutrition and physical activity, for example).

ICBI may be valuable for providing information and support in sexual health contexts for a variety of reasons. Access to computer-based interventions can be anonymous, repeated, and at convenient times; interventions can offer individualised feedback, and can promote active learning; and dissemination can be fast and relatively cheap online. The Internet is used confidently and frequently by young people; it is used widely for people finding new sexual partners and/or contact with sex workers, for example; and meeting sexual partners via the Internet is associated with increased sexual risk-taking. For these reasons it makes sense for health educators to take advantage of new technologies to promote sexual health.

## Trials included in the review

The review included 15 randomised controlled trials (RCTs); involving 3917 participants.

Settings and populations varied. Three trials were conducted entirely online: two with Dutch speaking participants, and one with English speaking American participants. The remaining 12 trials relied on some face-to-face contact with researchers, and were all conducted in the USA. Target populations included, for example, adolescents, adult men who have sex with men, college students, and male soldiers.

## Interventions

All interventions were computer-based

programmes, and were delivered either on individual computers, or via the Internet. Programmes produced material that was personally relevant to users of the programmes in a variety of ways eg. tailored feedback on knowledge tests which was adjusted according to the answers given. Programmes made imaginative use of multimedia capabilities eg. games to test knowledge; stories, scenarios and simulations; and virtual characters with choices to make.

Comparisons in included trials fell into three categories:

1. **ICBI** (intervention group) compared with '**minimal intervention**' (control group) such as non-interactive, non-sexual intervention eg. usual practice, waiting list, or leaflet;
2. **ICBI** compared with **non-computerised, face-to-face** sexual health education eg. lectures, group learning;
3. Comparison between **two different types** of computerised sexual health intervention.

## Main results

**Comparison 1: ICBI** (intervention) compared with **miminal intervention** (control):

Meta-analysis (combining data) of trial results showed *statistically significant* effects as follows:

- Six trials (1032 participants) showed moderate improvement in **sexual health knowledge** in the intervention group;
- Six trials (1152 participants) which reported on safer sex **self-efficacy** showed a small improvement in the intervention group;
- Three trials (831 participants) which reported on **safer-sex intentions** showed a small improvement in the intervention group;
- Four trials (562 participants) showed a small improvement in **sexual behaviour** eg. condom use for sexual intercourse;
- There were insufficient data to draw conclusions about **biological outcomes** (eg. STI rate), **cost-effectiveness** and **harms** (eg. unintended adverse effects attributable to the intervention).

**Comparison 2: ICBI compared with face-to-face interventions:**

- Meta-analysis of 2 trials (317 participants), where one trial compared ICBI with stress training, and the second compared ICBI with lectures, showed a small improvement in **sexual health knowledge** in the ICBI group;
- There were insufficient data to determine effects on other types of outcomes—**self-efficacy** (1 trial), **intention** (1 trial), **sexual behaviour** (1 trial), and **biological outcomes** (1 trial);
- No trials measured potential **harms**.

**Comparison 3: Comparing different types of ICBI interventions:**

- There were insufficient data to identify the most effective ICBI type or features of ICBI interventions.

## Conclusions

ICBI for sexual health promotion are feasible for a variety of people in different settings (in high income countries). They are effective tools for learning about sexual health, and they also

improve self-efficacy, intention and sexual behaviour.

More research is needed to establish whether computer-based interventions can change outcomes such as rates of sexually transmitted infections and pregnancy, to understand how interventions might work, and to assess whether they are cost-effective.

## Implications

There was a diversity of studies in this review, however evidence is needed to determine the effectiveness of interventions in different settings globally, and with a wide range of participants including women who have sex with women and older age groups, for example.

It is not clear which types of ICBI work best; for example, which theoretical model for ICBI works best for which populations, how best to target and tailor interventions, and how to harness the potential of interactive design and communication technology to facilitate behaviour change, when patterns of computer and Internet use are changing so rapidly. User involvement in the design and tailoring of interventions is essential to ensure that interventions are attractive and acceptable to users, and meet their needs and preferences.

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This Evidence bulletin is a summary of a Cochrane systematic review on *The Cochrane Library*; it summarises and reports information published online in the original review. You are welcome to forward this bulletin on to any interested colleagues/individuals, organisations or networks.

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