# HIV prevention education and comprehensive sexuality education

## Key points

- **In-school behavioural interventions can improve knowledge, attitudes and skills.**
- **There is very limited evidence of school-based programmes having a positive impact on HIV and STI incidence.**
- **Abstinence-based school programmes have not been found to delay sexual debut in lower-income countries or to reduce HIV incidence in higher-income countries.**
- **There is limited evidence of a positive effect of peer education outside of schools on the use of sterile injecting equipment among people who use drugs, but there is no effect on any outcome when peer education is used in schools.**
- **There is a lack of evidence about the sustained effect of peer education on HIV and STI incidence.**

This section summarizes the effects of HIV prevention education and comprehensive sexuality education. This includes a range of school-based prevention approaches, as well as other peer education programmes that are partially conducted in schools.

School-based health and sexuality education can have a range of outcomes beyond HIV prevention, including sexual and reproductive health knowledge and attitudes. Those outcomes, however, are beyond the scope of this compendium.

For the sake of readability, all peer education approaches are covered in this section, although out-of-school peer education also could have been classified as individual and group communication activities (and thus covered under the section “Individual and group interventions for social and behaviour change”).

# School-based HIV prevention and comprehensive sexuality education

**What does the evidence say about the effect of school-based HIV prevention and comprehensive sexuality education?**

- School-based interventions can have an effect on knowledge of (and attitudes towards) sexual and reproductive health and HIV prevention. In some cases, they also can have an effect on self-reported behaviours.
- Positive long-term effects were mostly found for knowledge.
- Few studies measured biological outcomes. Of the ones that did, most did not find significant effects.
- More successful interventions tend to be delivered by trained adult facilitators, have multiple sessions, include skill- and knowledge-building activities, and consider social context.

## Characteristics of successful programmes

There is a relatively large evidence base for HIV prevention in schools. A 2013 review by the United Nations Children's Fund (UNICEF) summarized the findings of 18 previous systematic reviews and meta-analyses *(181)*. It found that that while in-school interventions can be effective in terms of knowledge, attitudes and skills, the few trials that have evaluated their impact on biological outcomes have largely found no significant effects. The evidence for reported behaviours was mixed and needs to be interpreted with consideration for the limitations of self-reporting of outcomes and small to moderate effect sizes, but it suggests that key characteristics of the more successful interventions included the following:

- Delivery by trained adult facilitators.
- Multisession programmes.
- Curricula that include skill- and knowledge-building activities.
- Programmes tailored to the social context.

Programmes led by peers (e.g., other young people) were not generally effective in school. This will be discussed in greater depth below (under "Peer-based interventions").

## Abstinence focus or comprehensive sexuality education

Adolescent sexuality is a politically sensitive issue in many settings, and there often is pressure for in-school programmes to emphasize abstinence or delay of sexual debut. However, the 2013 UNICEF review reported that most abstinence-only programmes were found to be ineffective, and that there was no evidence that other programmes hastened sexual debut or increased sexual activity. Moreover, a systematic review of abstinence-only programmes in high-income countries found no evidence that the approach prevented new HIV infections among young people or changed their sexual behaviour *(182)*. Programmes

that offer abstinence as an option for reducing risk—alongside condoms and other strategies—were more effective *(183)*.

### Long-term effects limited to knowledge

One rigorously evaluated example of a programme for young people that emphasized delaying sexual debut and reducing partner numbers was MEMA kwa Vijana (good things for young people). Set in rural areas of the United Republic of Tanzania, MEMA kwa Vijana was based on social learning theory and included the following *(184)*:

- Teacher-led, peer-assisted sexual and reproductive health education for school pupils aged 12 to 15 years.
- Efforts to make sexual and reproductive health services more acceptable to young people.
- Condom promotion and distribution by young people.
- Community mobilization activities.

Evaluation showed that implementation and coverage of the programme was good: three years after recruitment, there were improvements in knowledge, sexual attitudes and some reported sexual behaviours, especially among males *(184)*. However, the programme had no impact on HIV incidence or the prevalence of other STIs.

Since it could be hypothesized that programmes for adolescents and efforts to change community norms might only have an impact on such outcomes several years later, further evaluation of the MEMA kwa Vijana programme was conducted nine years after its first implementation. Young people who were of school age when it was provided were interviewed, and it was found that knowledge continued to be higher in intervention communities. Despite this, the observed differences in sexual behaviour were modest and the programme had no impact on rates of HIV or STIs *(185)*.

The results therefore challenge the belief that positive changes in knowledge and reported attitudes and behaviours will eventually lead to a significant reduction in HIV, STIs and unwanted pregnancies. Qualitative research on MEMA kwa Vijana did highlight social norms and structural barriers that the programme did not sufficiently engage and modify: (a) the young people in the programme were not always in a position to use the knowledge and skills they were taught; (b),there was considerable peer pressure to be sexually active; and (c) there was widespread acceptance of relationships between older males and younger females *(186)*.

### Effects on knowledge and sexual behaviour of young people

Michielsen et al. systematically assessed the effectiveness of HIV prevention interventions in changing sexual behaviour of young people (aged 10 to 25 years) in sub-Saharan Africa *(78)*. Included in the review were 31 studies reporting on 28 interventions. In meta-analysis, effects on condom use at last sex only increased among males [RR = 1.46; 95% CI: 1.31–1.64], with little heterogeneity in these effect measures.

A school-based campaign for young people (particularly women) that discussed high HIV levels among adult men and the risk of unprotected sex was evaluated in a randomized controlled trial in western Kenya *(187)*. It provided a simple session informing young women

about HIV prevalence among male partners of different ages, the implications for HIV risk for young women and basic HIV prevention methods.

The intervention reduced teenage pregnancy by 28% and teenage pregnancy from an older partner by more than 60%. Reduced teenage pregnancy in this context was used as an objective proxy for a decrease in unprotected sex and HIV-related risk reduction *(187)*. This suggests that the specific risk information component applied in the intervention campaign that had previously not been communicated to young women through the national HIV and AIDS curriculum for schools (e.g., information on HIV prevalence among male partners of different ages, implications for HIV risk for young women and risk reduction strategies) was sufficient to help them choose fewer contacts with older partners. It also enabled them to have more condom-protected sex with same-age partners.

Another systematic review, this time in 2014 by Fonner et al., investigated the efficacy of school-based HIV prevention and sex education interventions for changing HIV-related knowledge and risk behaviours in low- and middle-income countries *(188)*. The review included 64 interventions presented in 63 articles. Nine interventions were either abstinence-only or emphasized abstinence (also known as the “abstinence-plus approach”); the remaining 55 interventions provided comprehensive sex education. Twenty-one studies measured condom use as a primary outcome, but only 13 could be included in a meta-analysis. Four articles with condom use as a primary outcome were included in both this review and the Michielsen et al. review *(78)*. Fonner synthesized condom interventions (condom use at last sex, 100% condom use and consistent condom use) and reported that condom use was significantly higher among intervention participants (OR = 1.34; 95% CI: 1.18–1.52; $P < 0.001$) *(187)*.

## Peer-based interventions

**What does the evidence say about peer-based interventions?**

- There is no effect on any outcome when peer education is used in schools.
- There is limited evidence of a positive effect from peer education on the use of non-sterile injecting equipment among people who use drugs.
- There is no evidence of a sustained effect from peer education on HIV and STI incidence.

Peer education—where individuals are trained to deliver HIV prevention interventions to people like them who are in similar situations—is based on the idea that peers are best placed to reach socially marginalized groups who are vulnerable to HIV. This approach builds on the assumption that health professionals may be less able to reach these groups, who may be unwilling to discuss issues of sexuality or drug use with them. Due to their insider status, however, peers are seen as the best communicators of knowledge and skills.

### Interventions working with peer educators

A review of 30 studies of peer-based prevention interventions in developing countries published before 2006 found that peer-based interventions were significantly associated with increased HIV knowledge (OR = 2.28; 95% CI: 1.88–2.75), reduced use of non-sterile injecting equipment among people who inject drugs (OR = 0.37; 95% CI: 020–0.67) and increased condom use (OR = 1.92; 95% CI: 1.59–2.33) *(189)*. However, they had no significant effect on STIs.

Moreover, study designs were generally weak: for example, the review did not identify any randomized studies that assessed a biological outcome (either HIV or STIs). A number of additional studies were identified in a later review, but it also found that positive effects (in the form of self-reported attitudes and behaviour) were more frequently reported than changes in biological outcomes *(190)*.

Similarly, a review of European studies of peer-based HIV prevention interventions for young people found no clear evidence that peer education had an impact on knowledge, behaviour, STIs or unintended pregnancy *(191)*. A large study in the United Kingdom with a total follow-up period of seven years found few differences in outcomes among those receiving school sex education from peers and those receiving it from teachers *(192).*

### Interventions working with early adopters

Another large, multi-country trial that involved peer education and community mobilization was Project Accept. This study randomized 48 communities in South Africa, Thailand, the United Republic of Tanzania and Zimbabwe to: (a) a wide-ranging package of activities that focused on the whole community; or (b) standard clinic-based services *(193)*. Based on diffusion of innovation theory which suggests that innovations and changes often originate with an influential subset of the population known as “opinion leaders”, the study sought to engage influential early adopters to promote HIV testing and status disclosure through multiple activities, including training sessions, meetings, the distribution of printed materials

and informal discussions with friends and colleagues. In addition, greater access to HTC was offered through mobile units in community settings (e.g., marketplaces and transport venues), as were a package of post-test support services. The latter aimed to improve the quality of life of people tested for HIV, regardless of their HIV status, and it addressed issues such as safer sex, disclosure, stigma, mental health and peer support.

At the end of the three-year intervention period, a post-intervention behavioural survey was conducted with 56 683 people aged 18 to 32 years (the peak age range for HIV infection in these settings). Importantly, participants had not necessarily had any prior contact with the intervention; they simply lived in a community where it had been provided. The evaluation therefore tested whether the innovation had diffused through the communities.

HIV incidence, estimated through anonymous testing during the behavioural survey, was 1.52% per year in intervention communities, compared to 1.81% in the control communities *(193)*. The RR of infection was 14% lower, just missing statistical significance (RR = 0.86; 95% CI: 0.73–1.02). The intervention had the greatest effect on older women within the sample (those aged 25 to 32 years): incidence in this group was 30% lower (RR = 0.70; 95% CI: 0.54–0.90).

Disappointingly, however, HIV infections did not fall among younger women or men aged 18 to 24 years, and there were no differences in terms of condom use *(193)*. Individuals living with HIV in the intervention communities did report fewer sexual partners and were less likely to have multiple partners. These effects were most noticeable among men.

### Peer education for adolescents in- and out-of-school (combined)

Another programme in Zimbabwe combined the following:

- Peer education for adolescents, both in- and out-of-school.
- Work to make sexual and reproductive health services more acceptable to young people.
- A programme for parents and community stakeholders that aimed to create a more supportive environment for adolescents and improve communication between parents and children *(194)*.

Qualitative and process evaluation suggested that the intervention was popular; the peer educators (who were a few years older) were described as an inspiration to the young people.

Four years later, the evaluation found modest improvements in knowledge and attitudes among young men and women in intervention communities, but no impact on self-reported sexual behaviour *(194)*. There also was no impact on biological outcomes (the prevalence of HIV, HSV-2 or current pregnancy), but women were less likely to report ever having been pregnant.

### Peer education for other populations

Peer-based interventions can also help reach people who inject drugs, a group that otherwise may be hard to reach. In a review of systematic reviews, three core and two supplementary reviews of injecting equipment interventions were found *(195)*. In the 30 peer intervention studies included in these reviews, researchers reported a 63% reduction in the use of non-sterile equipment (OR = 0.37; 95% CI: 0.20–0.67) and an almost doubling of the use of condoms (OR = 1.92; 95% CI: 1.59–2.33).

Despite these effects on reported behaviours, there was no clear evidence of an effect on HIV transmission. The authors concluded that the evidence for the effectiveness of needle and syringe programmes (NSP) in preventing HIV transmission is tentative, and that ecological studies have more consistently suggested a positive impact of NSP on hepatitis C and HIV than individual-level observational studies have done. The authors highlight the limitations of the designs of studies that have been undertaken as a likely cause of the inability to detect the effect of NSP on biological outcomes, especially in the case of HIV *(195)*. Studies have been affected by inadequate measurement of coverage or intensity of the specific interventions (i.e., the amount of injecting equipment provided), and many studies showed a limited number of needles or syringes supplied, which was insufficient to meet client demand. They also may be susceptible to a range of biases, including self-selection and frequently unclear distinctions between exposure and non-exposure (e.g., unexposed groups may access clean needles and syringes outside of the study sites, while exposed groups may maintain high-risk injecting practices). Finally, the authors suggest that studies have not had large enough samples and have not been adequately powered to find true and statistically significant biological effects.

# Operational considerations

### Issues to consider when designing school-based programmes

There are some additional considerations when designing school-based HIV prevention programmes within (or complemented by) comprehensive sexuality education.

- To be effective, comprehensive sexuality education content must respond appropriately to the specific context and needs of young people. This adaptability is central to culturally relevant programming, and it includes understanding the messages (sometimes positive and sometimes negative) that cultures convey about gender, sex and sexuality.
- Curricula-based education was shown to be more effective when it addresses gender norms and power, including how power inequalities in relationships influence the ability of individuals to protect their health *(196)*.
- While programmes using adult-led facilitation have been found to be more successful in some studies, teacher training is required to ensure that comprehensive sexuality education is provided in a safe environment.
- School-based interventions on the risk of age-disparate sex could be more effective for adolescent girls aged 10 to 19 years (among whom HIV prevalence is still low) than among young women aged 20 to 24 years. Model analysis showed that if many young women who are already HIV-positive replaced older partners with young male partners, HIV prevalence would rise among younger men, an outcome that could reduce the population-level benefits of such a campaign *(197)*. It also is important to ensure that interventions are not replicating stereotypes of so-called sugar daddies, as very large age differences (those exceeding 15 years) are rare *(198)*. Evidence shows that sexual risk behaviour is mainly present in partnerships with both age and economic asymmetries. To avoid stereotyping partnerships with large age differences, economic relations in such partnerships should be assessed in detail, as should their frequency and what effect they may have on sexual risk behaviour.

### Increased school attendance and its effect on HIV prevention

Depending on baseline levels of school attendance and other contextual factors, increased school attendance itself could potentially reduce the risk of adolescent girls acquiring HIV in three different ways.

- Being in school can be protective and reduce HIV by reducing early marriage and high-risk sexual partnerships. In Botswana, for instance, each additional year of secondary schooling induced by a secondary school reform led to an absolute reduction of 8.1% in the cumulative risk of HIV infection ($P = 0.008$) relative to a baseline prevalence of 25.6% *(199)*. The authors controlled for a range of factors, including potential confounders, and they suggest that there is a causal relationship. Similarly, a study in South Africa found that the risk of acquiring HIV for women who stayed in school and attended more often was reduced by two thirds *(200)*.
- In contexts with advanced HIV epidemics, higher educational attainment is itself associated with reduced HIV prevalence in life and with safer behaviours *(201)*.

- Keeping girls in school implies that adolescent girls can access HIV prevention information in the context of comprehensive sexuality education or school-based campaigns.

Whether programmatic efforts to increase school attendance will have these types of effects on HIV in a specific setting, however, will depend on the specific country and local context. In some countries, momentum for increasing access to in-school education and realizing gender parity in education may have been generated in the education sector itself. In settings with low access to secondary education for adolescent girls, high HIV incidence and limited momentum for keeping girls in school, HIV advocacy needs to support efforts to enhance access to secondary education for adolescent girls. Given the greater vulnerability that orphaned adolescents have to HIV, advocacy also is required to achieve equitable access to schooling for them. These actions will require alliances with partners in the education sector and with parental groups, and for concerted investment cases to be presented to ministries of finance and decentralized local authorities.

The effectiveness of behavioural interventions to prevent HIV. A compendium of evidence.

## Conclusion: HIV prevention and comprehensive sexuality education

The potential of school-based HIV prevention and comprehensive sexuality education lies in the opportunity to achieve high coverage in a short period of time. That reach also reflects rising levels of school attendance in many parts of the world since the 1990s (including sub-Saharan Africa). When they integrate HIV prevention communication into the curriculum and deliver it through existing systems, schools offer a cost-efficient opportunity to further increase HIV knowledge (including disseminating new knowledge) and to build HIV prevention skills across young populations, both in high HIV incidence communities and beyond. Due to mixed results and moderate effect sizes, however, school-based programmes on their own cannot be relied on to reduce HIV incidence among young people at the population level.

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