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Adolescent sexual health

Adolescent reproductive health interventions

F M Cowan

Must be a priority if the next generation is not to be decimated by HIV

The broad aim of adolescent reproductive health interventions (ARHI) is both to reduce the adverse consequences of sexual behaviour and to improve the quality of sexual relationships for young people, both as young people today and also in their future life as adults. This article aims to describe the different approaches that have been employed and to review the methodological issues that face both those developing and implementing these interventions and the researchers trying to evaluate their effectiveness. It makes no attempt to systematically review all the relevant literature.

BACKGROUND

Young people are particularly vulnerable to the adverse consequences of early sexual behaviour¹ and as such are widely recognised to be one of the most important groups for reproductive health interventions.² This increased vulnerability is caused by a number of biological, behavioural, and psychological factors³ including hormonal changes at puberty, cervical anatomy, immunological naivety, inability to recognise symptoms of infection, sexual experimentation including experimentation with same sex partners, non-consensual sex, imperception of risk, immaturity of communication skills, contraception choice, poor

health seeking behaviour, and alcohol or illicit substance use. In addition, structural (societal) factors that facilitate HIV and STI spread are also well documented.⁴ Economic deprivation, sex inequalities and mobility, including social disruption, are all important determinants of HIV/STI spread.

The consequences of sexually transmitted infection (STI) and unplanned pregnancy can be devastating. Young women are at the start of their reproductive life and risk compromising their future fertility through tubal occlusion or ectopic pregnancy. In many areas, young women who get pregnant are withdrawn from school, further disadvantaging them. In countries where access to abortion is limited, the gynaecological consequences of "back street" abortion can be dire. While young men suffer fewer direct health consequences of early sex, infection or pregnancy can still have adverse consequences for them—for example, with respect to further education and training opportunities.

Numerically, young people between the ages of 10 and 24 make up one third of the world's population. Eighty per cent of these young people live in developing countries where the burden of infection

with both STIs and HIV is greatest.⁵ Half of all people infected with HIV globally are infected before age 25.⁶

Developing, implementing, and evaluating interventions that not only minimise the risk of sexual intercourse in young people but also facilitate development of healthy sexual behaviour patterns and relationships are therefore a priority. There is evidence that initiating prevention interventions when teenagers are still sexually naive, before patterns of risky sexual behaviour are firmly established, is likely to be more effective than trying to change established behaviour in older adults.⁷ Interventions started in early adolescence will therefore have the greatest chance of minimising the risk from early sexual intercourse.

However, adult discomfort with adolescent sexuality is common and there is concern among some, often highly influential groups, that sex education promotes experimentation and increases sexual activity.⁸ There is disagreement about how explicit educational material should be, how much there should be, how often it should be given, and when it should be initiated.⁹ Given the importance of this topic there has been relatively little rigorous evaluation of the effectiveness and cost effectiveness of reproductive health interventions targeting adolescents,^{9,10} which means that policy makers with concerns about public reaction have few data to support widespread and comprehensive implementation.

ADOLESCENT REPRODUCTIVE HEALTH INTERVENTIONS

Adolescent interventions can be broadly divided into *behavioural interventions*, which seek to change the knowledge, skills and attitudes of individuals and *structural interventions*, which aim to tackle broader societal issues that drive the spread of STIs. The two approaches are not mutually exclusive and it is likely, for example, that individual behaviour change will best be sustained within a community that is broadly supportive of those behaviours. In addition, the broader cultural perspective of the community will greatly influence the feasibility of delivering an intervention within that community and will also affect how the recipients respond to it.¹¹

BEHAVIOURAL INTERVENTIONS

The aim of behavioural interventions is to influence individual behaviour patterns by improving control over sexual activity, delaying initiation of intercourse, minimising partner change, promoting appropriate health seeking behaviour, and encouraging use of contraception or in the case of young

homosexual men, non-contraceptive barrier methods.

Models of sex education fall broadly into those that advocate abstinence from sex, usually until marriage, and those that teach more broadly about sexuality. In the abstinence programmes contraception and condom use are not discussed whereas the sexuality programmes teach both about abstinence and how to have safer sex if abstinence is not an option. Abstinence programmes appeal to adults who believe that knowledge of how to have sex safely will lead to experimentation.

Several reviews have sought to examine the impact of different approaches to sexual health education for young people.^{7,9,10,12,13} All reviews agree that the methodological quality of most of the included studies limits the usefulness of their findings. Despite this, a consistent finding across the various studies from around the world is that there is little support for the view that sex education (either abstinence or sexuality based) encourages sexual experimentation or increased sexual activity.⁹

Intervention content and delivery

Although traditional knowledge based approaches to sex education have been shown to change knowledge, they have little impact on behaviour.¹⁴ The behavioural interventions that appear most likely to result in behaviour change are those that are theoretically based and draw on social psychological theories of behaviour change, derived from research that seeks to understand the origins and control of sexual behaviour.¹⁵ Sociological research into young people's sexuality suggests that sexuality is learnt, learnt differently by males and females, and is heavily influenced by gender-power relationships (which are culturally as well as individually determined).¹⁵ In addition, perception of health risk varies between individuals and is also culturally determined.¹⁶

Other factors that are likely to be important are that the behavioural aims of the curriculum are clearly defined and closely focused on sexual risk reduction.⁷ Particularly important is that behaviours should be modelled⁷ and that young people should get a chance to develop and rehearse strategies for practising safer sexual behaviour and in so doing increase their self efficacy.¹⁷ As cultural perception of sex, power, and risk are important in shaping an individual's sexuality, and therefore the outcome of their sexual encounters, programmes should provide young people with the opportunity to reflect on their cultural and personal assumptions about these issues, ideally before they become sexually active. Although many interventions have been developed for use in young people, relatively few have been theoretically based.¹⁸

Context of intervention delivery

Interventions targeting adolescents can be based in school or within the wider community. While school based education is attractive in that it is potentially cost effective and feasible, in many communities it will be the out of school youth who are most vulnerable to sexual risk taking for a variety of reasons. As school based sex education has to compete with academic subjects for resources and time within the main curriculum, programmes are often poorly implemented. Successful implementation requires genuine political support from within government, it needs to be properly timetabled, and its implementation needs to be monitored in the same way as it is for other subjects.

School based programmes can be delivered by teachers or by peer educators or a combination of both. Several studies have demonstrated that teachers need training, in order to deliver sex education effectively. Untrained teachers report discomfort with the materials, the message, and the interactive mode of delivery,⁷ and there are moves in many countries to get training in sex education incorporated into the basic teacher training qualification. Of note, in countries with high rates of HIV infection, teachers are one of the worst affected professional groups and not only need training to teach their pupils, but also to protect themselves.¹⁹

In the context of young people, peer education refers to pupils delivering an education programme who are of similar or slightly older age than the pupils receiving the programme. Several studies have demonstrated the effectiveness of peer educators in promoting behaviour change. The use of peer education in adolescents is particularly compelling since peer pressure is a major factor motivating behaviours.²⁰ Peer educators can act as effective role models, thereby facilitating positive changes in adolescent behaviour norms.^{21,22} By using the same language as their peers they may be better able to communicate with them. However, the logistics of programme delivery and training and supporting peer educators are considerable.

Two systematic reviews have been undertaken to examine the effectiveness of peer education in young people. The first, which sought to compare the effectiveness of peer led versus adult led health education (rather than sex education), found that where trials reported a change in self reported behaviour, peer led was at least as effective as adult led education.²³ The second review looked at the impact of peer led education itself and found that only 12 out of 462 studies were methodologically sound and that of these, only seven reported an effect on behavioural outcomes.²⁰ They identified five sound studies that compared the

impact of peer and teacher led delivery. Two of these studies found that peer led was more effective than teacher led, two found that it was as effective, and one study found that neither teacher nor peer led was effective.

A recent systematic review of prevention interventions undertaken in the United States suggested that education targeting single ethnic groups may be more effective than those aimed at more heterogeneous populations.¹³

In addition to educating young people either in or out of school, there is also interest in educating parents about issues relating to adolescent sexuality, with the aim of improving their communication with young people and helping them act as educators/advisers.

STRUCTURAL INTERVENTIONS

Structural factors associated with HIV risk and prevention have been defined as physical, social, cultural, organisational, community, economic, legal or policy aspects of environment that impede or facilitate a person's effort to avoid HIV infection.²⁴ Traditionally, adolescent reproductive health interventions have not addressed these structural factors which impede their efforts to avoid infection/pregnancy.²⁵ Several workers have demonstrated that it may be unrealistic to expect individual behaviour change when the broader societal and cultural context is not supportive of this change as, for example, is often the case for interventions that promote condom use and partner reduction strategies for impoverished heterosexual women in developing countries.^{19–26} However, there is a balance to be struck between what is ideal and what is feasible. It would not be reasonable to delay implementing behavioural interventions until complementary structural adjustments to the wider community can be implemented. Clearly societal factors such as economic deprivation and sex inequality are complex issues and will take time to change at a societal level.

Structural interventions can be targeted at the individual (micro level—for example, microfinance initiatives which aim to economically empower young women^{27,28}), at organisations (intermediate level—for example, by providing reproductive health services within schools or needle exchange schemes for drug users) or at environment (macro level—for example, bringing about legislative changes in age of consent for homosexual men or provision of the over the counter emergency contraception).²⁴ In the Netherlands, mass media approaches have been successfully used to change societal attitudes and raise awareness of sexual health issues.²⁹ As for behavioural interventions there is relatively little research evidence on

what works and what doesn't, partly because it can be difficult to measure changes attributable to an intervention at a societal level.⁴ There is increasing interest in developing structural interventions to complement behavioural programmes.³⁰

FURTHER RESEARCH

A common theme among literature reviews of adolescent sexual behaviour and reproductive health interventions is the poor methodological quality of much of the formative research, intervention development, and evaluation.^{7,9,15,20,23,31} This has been attributed both to lack of cooperation between health promotion practitioners and researchers in terms of developing theoretically sound interventions,³² and to the suspicion with which many social scientists, educationalists, health promotion practitioners, and policy makers regard experimental research.³³ Many educationalists regard access to sex education as a right in the same way as they regard access to learning to read and are therefore not interested in whether or not it changes some specific behavioural or biomedical outcome measures in an experimental study. This view contrasts sharply with that of some parents and religious groups, who are suspicious of sex education on the basis that it promotes sexual activity. Policy makers are not sure of the relative cost effectiveness of different educational approaches with different resource implications. Possibly as a result of this uncertainty, studies from around the world show that sex education is often poorly implemented and that high rates of HIV, STI, and unplanned pregnancy among adolescents continue to occur. O'Leary *et al* have called for the use of guidelines for reporting (and therefore designing and conducting) STD/HIV behavioural intervention research in the hope that this would enhance the utility and interpretation of the results from the large number of studies being conducted.³⁴

Outcome measures to assess effectiveness

With complex behavioural interventions, which aim to change skills, attitudes, peer norms and behaviours, the measures for determining impact need to reflect the aims of the intervention. In reality, measuring changes in all these areas, using scientifically robust outcome measures in well designed studies, is difficult to do. Therefore, many studies determine impact of such interventions by measuring changes in knowledge and self reported behaviour and intentions, rather than including externally valid measures such as STI rates or abortion statistics. However, sexual behaviour is difficult to measure and validate,^{35,36} particularly in young people. This is of

particular concern in trials of sexual behaviour interventions where reporting of the behaviour, rather than the behaviour itself, may be changed by the intervention, resulting in differential bias between the two arms of the study.³⁷ To date there are very few published evaluations of sex education that have used biological markers to determine effectiveness and none in developing countries.

Two recently published systematic reviews that have reported on biological outcomes of effectiveness have disappointingly shown no effect on these. In the first, a review of interventions that aim to prevent unintended pregnancy among adolescents found no difference in pregnancy rates between those receiving the interventions and those who did not (odds ratio 1.04, 95% CI 0.78 to 1.40).¹² In addition, they found no difference in reporting of risky behaviours. In contrast, a review of US based adolescent HIV prevention interventions did find evidence of behaviour change but no difference in the rates of STIs between intervention and control arms (odds ratio 1.18, 95% CI 0.48 to 2.86), although this may be because insufficient studies have been done to examine this.¹³

Process evaluation

Clearly it is important when assessing the effectiveness of behavioural or structural interventions to determine whether the intervention was delivered as intended, and if not what barriers to implementation exist and how these can be overcome. This information is crucial to determining the reasons for the success or failure of a particular project. For example, the lack of effect in the Masaka trial of a teacher led sex education curriculum was likely to be because the programme was poorly implemented owing to lack of classroom availability and because key sessions were omitted as a result of teacher discomfort.³⁸

CONCLUSIONS

The development and effective implementation of adolescent reproductive health interventions must be a priority for many areas of the world if the next generation is not to be decimated by HIV. It is likely that interventions that combine a behavioural and structural approach will be those most likely to succeed. However, although adolescent reproductive health has been on the health and education agenda for many years, there is still considerable apathy towards implementation of intervention programmes in many countries. While this is in part because of vociferous opposition from the "moral minority" it is also because of the lack of robust evidence about what works and what does not. The recent systematic reviews

that highlight the lack of effect of interventions on objective biological outcome measures, despite demonstrating an effect on reported behaviour, have important implications for future research design. Health promotion practitioners, teachers, and educational and health researchers need to work together to define research priorities and ensure that the most promising interventions are appropriately and rigorously evaluated using objective, well validated markers of effectiveness.

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Teenage pregnancy

"A single petticoat"

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Unintended teenage pregnancy is considered an adverse event for society and individuals

The human race has exercised fertility control since antiquity. The oldest medical recipe to prevent conception was written by the Egyptians around 1850 BC. The Greeks, in the 2nd century AD, not only distinguished between contraceptives and abortifacients, but also observed that prevention of conception is medically preferable to abortion. In more recent history, detailed contraceptive techniques were published by Charles Knowlton in 1832; contraceptive

methods became widely available in the United Kingdom and other developed countries in the 1930s, and by the 1960s there was worldwide acceptance that fertility control was essential to curb the population explosion.

In developed countries, adolescents have been targets of pregnancy prevention strategies by communities since the late 1980s, as unintended teenage pregnancy is considered an adverse event for society and individuals. However, many

of these initiatives, though embraced by many with enthusiasm and best intent and often at great financial cost, have not been evaluated, reported, or subjected to any rigorous scientific scrutiny.

Hence the two original articles in a recent issue of the *BMJ* are particularly welcome.^{1,2} The Canadian investigators, DiCenso *et al*, undertook a meta-analysis of the results of 26 randomised controlled trials of published and unpublished interventions (including sex education classes, school or family planning based clinics, and other community based programmes). There was no evidence that such interventions either delayed sexual intercourse, improved the use of contraception, or reduced the incidence of unintended pregnancy in adolescents.¹ The investigators from Scotland, Wight *et al*, published the long awaited interim report of a randomised trial comparing a specially