

# Evaluation of an AIDS education programme for young adults

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## Abstract

**Study objectives**—To evaluate the impact of an AIDS education programme designed for young adults.

**Design**—A randomised trial with a pre-post test design

**Setting**—Participants were drawn from six youth training centres in the city of Nottingham, England.

**Study population**—All trainees aged 16-19 years attending the six centres were included in the sample and centres were randomly allocated to experimental (n=173) and control (n=164) groups. The response rate to both questionnaires was high (71%)

**Measurements and main results**—Data on sexual behaviour, knowledge, and attitudes towards HIV/AIDS were obtained by confidential questionnaire. Two thirds of the sample were sexually active. There were no differences between groups at pre-test and no differences by sex. The experimental group had a significantly higher level of knowledge than the control group post-test. Significantly more experimental than control trainees knew post-test that HIV could be transmitted via anal sex and through broken skin. In addition, twice as many experimental (53%) as control trainees (25%;  $p < 0.001$ ) were aware that a cure for AIDS was unlikely in the near future. There were no observed effects on sexual behaviour, intentions, or attitudes.

**Conclusions**—The Streetwise UK educational programme had a significant impact on young adults' knowledge of HIV/AIDS transmission and prevention in the short term. If community based AIDS education is to do more than merely inform, however, resources must be made available for peer led interventions and skills training.

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In the UK, surveys of sexual behaviour in young adults have reported that by the age of 16 years, at least half have engaged in sexual intercourse.<sup>1-4</sup> Among those who are sexually active in the 16-24 age range, condom use on the last occasion of intercourse has been reported to range from between one in four<sup>3 5</sup> to half<sup>6</sup> of survey respondents. The level of sexual activity and relatively low levels of condom use, coupled with the fact that approximately 16% (1587) of all cases of HIV reported in the UK in 1989 were in the 15-24 year age range, of which 50% (645) were the result of sexual transmission,<sup>7</sup> emphasise the need for HIV

related education and preventive strategies for this age group.

While examples of studies of sexuality<sup>8</sup> and of HIV/AIDS educational programmes<sup>9</sup> for 16-18 year olds in schools and colleges exist and contribute to our understanding of the process of programme implementation, evaluation undertaken without control groups<sup>9</sup> does not allow conclusions to be drawn about the relevant outcome measures. Scientific evaluation of HIV/AIDS programmes for young people is extremely rare. Those that have been successfully undertaken have been with school pupils to evaluate school based programmes.<sup>10-13</sup>

A recent nationwide survey by the United States General Accounting Office noted that there was a distinct lack of 'out of school' education for young people.<sup>14</sup> This situation also prevails in the UK. There is some limited evidence from World Health Organisation, KABP (knowledge, attitudes, beliefs, and practices) surveys in developing countries that community based programmes are associated with an increase in self reported safer sex in younger adults who are not in schools or colleges.<sup>15</sup> The extent to which these self reports are related to changes in, for example, sexually transmitted diseases has yet to be documented.

This study aimed to develop an educational intervention targeted at young adults who had left school. The intervention was designed to improve knowledge, generate positive attitudes, and increase self reported safer sexual practices such as condom use. This study also aimed to undertake a scientific evaluation of the intervention using a randomised design.

## Methods

### STUDY DESIGN

A randomised controlled trial with a pre-post test intervention design was undertaken. Because it would have proved impossible to avoid contamination effects if individuals had been allocated randomly to experimental and control conditions, youth training centres were assigned randomly.

### SAMPLE

Six of nine youth training (YTS) centres in the city of Nottingham, England agreed to participate. Youth training centres are institutions at which young people aged 16 years and above who have just left school may receive training and obtain skills needed to secure employment. These six YTS centres were randomly assigned to experimental and control conditions. All trainees aged 16-19 years who were attending the centres were included in the sample (173 experimental and 164 control).

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In addition, a volunteer sample of 31 of the experimental group were asked to participate in focus group discussions about the intervention subsequent to the post-test phase. Trainers at each centre (n=6 in total) were also interviewed about the way in which they had implemented the programme and their views on its impact.

#### DATA COLLECTION

A self completed confidential questionnaire determined knowledge of and attitudes towards HIV and AIDS, sexual behaviour, and current and intended condom use. Identical questionnaires were distributed, invigilated and collected from class groups of trainees at each centre at pre-test and again two weeks later at post-test. Pre- and post-test questionnaires were matched by sex and date of birth. Trainers at each centres were also interviewed using a structured schedule.

#### RESPONSE

##### Reliability

One question was asked twice but phrased differently in the questionnaire to determine the internal consistency of response—'The virus is less likely to be transmitted during sex if a condom (sheath) is worn' and 'People can reduce their chance of becoming infected with HIV by using condoms (sheaths) during sexual intercourse'. No difference in paired response to the questions was noted in either group at pre- or post-test. For example, at pre-test; Experimental group=99% consistency; mean (SD) differences 0.01 (0.10);  $t=1.00$   $df=107$  and control group=98% consistency; mean (SD) difference -0.2 (0.13);  $t=1.42$ ;  $df=110$ .

##### Response rate

Seventy per cent of the experimental group (121 of 173; 70 males and 51 females) completed questionnaires at both pre- and post-tests. Of the control group, 73% completed two scripts (119 of 164); 68 males and 51 females). In neither group was non-response a result of refusal to take part in the study. Of the initial sample, 52 experimental and 45 control group students were absent at either pre- or post-test because of illness or work experience. Most of these (47 experimental and 41 control) were unavailable because of work experience. This entails students undertaking a three month placement in industry at any site within the extremely large geographical area of the Midland region of England. This rendered impossible further follow up within a reasonable time period after completion of the teaching programme and the two week post programme test date. There were no spoiled or partially completed questionnaires.

#### INTERVENTION

This comprised the *Streetwise UK* comic<sup>16</sup>

designed for use with groups of young adults out of school and over the age of 16 years and based on an original idea from materials produced for school pupils.<sup>10</sup> The comic was developed by a research graphic artist working with small groups of young people in youth clubs in focus group sessions. The comic therefore contained relevant language, developed 'real life' stories and thoughts expressed by its target audience and aimed to respond to their stated needs for information and discussion. The comic was accompanied by a *Facilitator's Guide*<sup>17</sup> which outlines methods for its use and encourages in depth discussion and role play. The aims of the package of materials were as follows: to provide relevant information about HIV transmission for teenagers; discuss methods of prevention; encourage appropriate decision making with regard to safer sex; clarify personal values and attitudes about HIV and AIDS; and explore opinions and reactions towards people who are HIV positive. To this end the content of the materials covered: basic information about HIV, AIDS, body fluids and transmission, sex and risk, sexual relationships, and social and sexual behaviour and attitudes. The strategies devised for implementing the intervention were based on active learning principles such as group work and clear step by step guidelines for implementation were provided in the package.

#### Results

No differences between the groups were observed at pre-test on any study variable. No differences by sex were observed at pre- or post-test.

#### KNOWLEDGE

Two weeks after the intervention, the experimental group had a significantly higher mean level of knowledge than the control group (table I). Questions in which significant differences in knowledge levels were observed are given in table II. Experimental students were twice as likely as controls to know that a cure for AIDS was not imminent.

Overall knowledge levels were relatively high at pre-test—74% of questions were answered correctly in both groups. Uncertainty still prevailed at pre-test about: the transmission of HIV from blood donation (44% correct in both groups combined); insect transmission (48% correct); and transmission from toilet seats (67% correct).

#### ATTITUDES

No statistically significant differences were observed in attitudes between groups at pre- or post-testing.

Whilst most young people held positive and sympathetic attitudes, at post-test, one in four of the experimental group (n=30; 25%) and one in five of the control group (n=24; 21%) felt that people with AIDS should be quarantined. This difference was not statistically significant ( $\chi^2=0.4$ ,  $df=1$ ; NS). Approximately one in three experimental and control trainees (n=39; 33% and n=30; 27% respectively;  $\chi^2=0.6$ ;  $df=1$ ; NS) thought anyone who caught HIV had only themselves to blame. Just under half of both groups said at post-test that they did not feel sorry for homosexuals who had AIDS since it was their own fault (experimental group n=53; 44%; control n=46; 40%).

Table I Mean HIV/AIDS knowledge scores at pre- and post-test

Test	Group	No	Mean score (max=33)	(SD)	t value (unpaired)	Degrees of freedom	Significance
Pre-test	Experimental	121	23.89	(5.22)	-1.39	238	Not significant
	Control	119	24.76	(4.43)			
Post-test	Experimental	121	27.40	(5.11)	2.98	238	p<0.001
	Control	119	25.53	(4.58)			

Table II Knowledge questions which showed a significant difference at post-test between experimental and control groups

	Experimental group response			Control group response			$\chi^2$	df	p value
	True No (%)	False No (%)	Don't know No (%)	True No (%)	False No (%)	Don't know No (%)			
Warts and sores on the lips can be transmitted to the genitals	91 (76)	19 (16)	10 (8)	51 (43)	21 (10)	46 (39)	34.50	2	p<0.001
You can get HIV from anal sex	108 (92)	5 (4)	5 (4)	86 (74)	6 (5)	24 (21)	15.02	2	p<0.001
You can get the AIDS virus by being bitten by mosquitoes or other insects	24 (20)	75 (62)	22 (18)	19 (16)	56 (48)	43 (36)	10.08	2	p<0.05
Sexually transmitted diseases such as gonorrhoea, syphilis and HIV can be caught from swimming in a swimming pool.	9 (8)	104 (87)	6 (5)	1 (1)	100 (86)	15 (13)	10.30	2	p<0.05
The AIDS virus can enter the body through broken skin	104 (86)	13 (11)	4 (3)	83 (70)	11 (9)	24 (20)	16.80	2	p<0.01
T cells are a type of white blood cell	79 (66)	12 (10)	29 (10)	51 (43)	8 (7)	59 (50)	17.04	2	p<0.001
A cure for AIDS is on its way	25 (21)	67 (55)	29 (24)	33 (28)	29 (25)	56 (47)	24.68	2	p<0.001

df= degrees of freedom

#### BEHAVIOURAL INTENTIONS

No difference between groups pre- or post-test was observed in the proportions who said they intended to use a condom the next or first time sexual intercourse took place. Over three quarters in each group said they intended to use a condom (pre-test: experimental group 82 of 107, 77% control 97 of 111, 87%; post-test: experimental 85 of 110, 77%; control 93 of 104, 89%).

#### SEXUAL BEHAVIOUR

Two out of three trainees in both groups claimed to have been sexually active in the past year. (Pre-test: experimental: 78 of 119, 65% control 74 of 117, 63%; post-test: experimental: 83 of 120; 69% control: 78 of 115, 68%). However, no statistically significant differences in the number of sexual partners in each group were observed at post-test experimental group: 0=37 (31%), 1=49 (41%), 2+=34 (28%); control group: 0=37 (32%), 1=48 (42%), 2+=30 (26%),  $\chi^2=0.15$ ; df=2; NS).

Half the sample who were sexually active indicated that they had used a condom on the last occasion when they had sexual intercourse. There were no differences between groups in condom use at either pre- (experimental group: 51 of 86, 59%; control group: 49 of 76; 64%  $\chi^2=0.3$  df=1) or post-test (experimental group: 50 of 86, 58%, control: 55 of 78; 70%,  $\chi^2=22$ ; df=1; NS). Post-test, more experimental (40 of 95, 42%) than control trainees (30 of 84; 36%) said they had talked about HIV with their partner before having sexual intercourse, but this difference was not statistically significant ( $\chi^2=0.5$ ; df=1; NS).

### Discussion

#### METHODOLOGY

Randomised trials of the impact of health education intervention using pre- and post-testing provide the most powerful evidence of the impact of intervention because of lack of bias.<sup>18</sup> These trials are, however, rare in the field of health education and health promotion.<sup>19</sup> This is partly because of the obvious practical difficulties in separating out experimental and control individuals in a community setting in such a way that 'contamination' of controls by the intervention cannot occur. One way to overcome this problem to some extent is to randomise groups of individuals attending centres, courses, or institutions. While not as powerful a study design as a rando-

mised controlled trial of individuals, it is nevertheless feasible in practice and therefore the design adopted by this study.

It has been argued that the introduction of new health education material requires the teacher or facilitator of the programme to be committed to a new approach and to the subject area as well as properly trained in, or briefed on, the necessary skills.<sup>20</sup> Random allocation of sites to experimental and control conditions could therefore result in programme being presented by facilitators who were not committed, which in turn may lead to the innovation being less completely or less well taught thereby having less impact.<sup>21</sup> In this study, all YTS centres and facilitators volunteered to be randomised. The comics and facilitator's guides were made available to the control groups after the project. The problem of lack of commitment was therefore obviated and interviews with facilitators subsequent to the project bore this out. The provision of the materials to the control group was, however, requested soon after intervention and this regrettably prohibited a long term follow up of the impact of the project.

Although response in both groups to both questionnaires was high at over 70%, non-response at one in three of the sample in both experimental and control groups does give cause for concern. Non-response was principally caused by YTS trainees being on work experience at the time of the study. Because this entailed up to three months' work placement at a site within a geographically large area, further follow up within the short time period of the study proved impossible. Refusal to participate was not a problem in this study since none of the trainees declined to take part when invited. In addition, pre-test comparison between experimental and control groups on sociodemographic knowledge, attitude, and behavioural characteristics strongly suggests that there were no systematic biases in non-response. The other aspect of response that may be of concern is the potentially low level of reliability of response in sexual behaviour studies.<sup>22</sup> This study attempted to address partially the issue of reliability by repeating a question and checking consistency; this was found to be high. One repeat question is insufficient, however, to be confident of internal consistency and therefore these findings can only be taken as an indication of some degree of reliability of response. It may be noteworthy that James *et al.*,<sup>23</sup> in a questionnaire and interview study of attenders at gientiourinary



medicine clinic found that respondents reported extremely reliably about their sexual behaviour. This area is one, however, where improvements in methodology could perhaps be encouraged using a series of objective measures. Darrow<sup>24</sup> has shown, for example, that certain groups, most notably prostitutes, do respond both validly and reliably to questions concerning sexual behaviour, drug using practices, and sexually transmitted disease.

#### FINDINGS

As in previous studies in the UK,<sup>1-4</sup> two of three of the 16-19 year olds in this study had been sexually active in the past year. Of those who were sexually active, only one in two had used a condom on the last occasion, a finding very similar to that reported by a large UK survey of young adults of a similar age.<sup>4</sup> The comic based programme designed for young adults who had left school was found to increase significantly the experimental group trainees' knowledge of HIV/AIDS and modes of HIV transmission. This finding confirms those of similar programmes undertaken in schools with younger teenagers.<sup>10-13</sup> The intervention also influenced knowledge of vaccine research and treatment, in that the experimental group was less likely to think that a cure for AIDS was imminent. It could be argued that people who think a cure for AIDS is on its way are less likely to change their sexual or drug using practices. No relationship between this view and behaviour was, however, observed.

This study found that despite measurable changes in knowledge, the programme had failed to influence young people's attitudes towards HIV/AIDS or their sexual behaviour. While most young people in both groups were largely sympathetic towards those with AIDS at post-test, approximately one in four felt people with AIDS should be quarantined and one in two expressed no sympathy for homosexuals with AIDS since they held the view it was their own fault they had caught the virus. Such negative attitudes have also been found in larger surveys of young people in the UK.<sup>1 25</sup> It is important that continued efforts be made to promote positive attitudes to people with AIDS and to discourage stigmatisation and ostracism. Negative attitudes may drive people with HIV disease 'underground' where they are less likely to gain treatment, counselling, and support to help them emotionally and to prevent their own re-infection or the further transmission of the virus.<sup>26</sup>

In the short term, the *Streetwise UK* comic programme was found to have no impact on self reported condom use or the number of sexual partners in young adults. Nor was there any impact on reported intentions to use condoms at the next or first time of sexual intercourse. Post-test, more experimental than control group trainees indicated that they had talked with their sexual partners about HIV before having intercourse, but this did not reach statistical significance.

It is well recognised that knowledge may be necessary but is not sufficient for behavioural change.<sup>27</sup> The comic for young adults emphasised peer/facilitator discussion style of use which drew upon the health behaviour change theories of

Bandura<sup>28</sup> and Ajzen and Fishbein.<sup>29</sup> The social learning theory of Bandura suggests that peers are often the most influential role models in day to day social learning and that it is important to develop and practice appropriate skills to enable health related behaviour change. Ajzen and Fishbein stress the importance of attitudes, beliefs and perceptions of peer norms in the development of health related behavioural intentions and, ultimately, behaviour. On this basis one could hypothesise that the use of the comic accompanied by role play and discussion with peers should have had an influence on attitudes, intentions, and behaviour—this was not the case in this study. However, interviews with facilitators suggested that the comic may not have been used as intended to promote discussion and role play. Instead, it was seen as an 'easy' way to give out basic information to young adults on a sensitive topic. Additional guidance and training for facilitators of this kind of educational provision for 'out of school' young people in the community is clearly a prerequisite for use in an effective way. Few would argue that it is desirable for young adults to make informed choices about their sexual or drug using behaviour and to this extent the intervention reported here can make a significant contribution. If, however, community based AIDS education is to do more than simply inform it must provide additional resources for reinforcement of interventions, facilitation, and peer training.

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